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Worktime in the United States Steel Industry, 1870-1939

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WORKTIME IN THE UNITED STATES STEEL INDUSTRY, 1870-1939

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By

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ABSTRACT

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The iron and steel industry was rapidly changing between 1870 and 1939. The decline of iron and the rise of steel, coupled with technological developments and new immigration trends, brought about a new industry at the end of the nineteenth century that was starkly different from just a few decades earlier. The industry was much more mechanized and a larger part of it consisted of continuous production. Its workers were much less skilled and tended to work longer. This thesis follows the changing nature of worktime in this period, as more workers remained on the job longer with the growing industry, until the economic resurgence beginning with the Second World War, when workers began to return to their jobs after almost a decade of insufficient work due to the Great Depression. It also follows various movements and strikes, including the strike of 1919, which fought to limit worktime.

DEDICATION

This work is dedicated to all who have helped me with this in some way or another. First and foremost, *Deo gratias*. My immediate family has been essential in helping me reach this step in numerous ways, whether financially or by taking care of numerous tasks for me while I spent so much time on this. My mother, Margaret, my father Frank and my brother, Brent, have all helped me in numerous ways. Relatives and friends have been supportive emotionally and there are too many to list, although I would like to mention my grandmother, Rosetta, and my dear Julianna. I would also like to thank all of the professors at Duquesne who have spent much time helping me with such a difficult task.

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Introduction

The steel industry has captivated many historians and much of the public for a number of reasons, particularly due to its labor disputes. But while many have focused on the issues of wages and working conditions and have told and retold stories of lockouts and strikes, one topic that affected the lives of workers and their families on a daily basis has often been overlooked and that is the issue of worktime. Books and books have been written on the Homestead Strike of 1892 but simple, general claims of the length of the workday and the workweek have been sufficient for many. It is true that there has been some study on the issue but, in my opinion, it has not received its fair share of research. Comprehensive studies on the subject have been almost non-existent.

The purpose of this research project is to fill in the void. Labor history does not have the popularity that it once had but this should not detract from the importance of such an endeavor. Realizing this, the project attempts to give a reasonably certain idea on the issue of worktime in the American steel industry from 1870 to 1939. The dates were chosen because the former year was the beginning of a decade that saw the rise of the steel industry in the nation. Many new plants were built in this decade and it was still some time before the major mechanization of the industry, which helps to show how hours changed due to technological innovation. The latter year was chosen because it marked the end of depression and the onset of the Second World War. Such a period covers the growth and mechanization of the industry, the collapse of trade unionism, immigration, welfare capitalism, the effects of the First World War, strikes, especially that of 1919, growing public and government sentiment against the 84-hour week, economic turmoil and then boom in the 1920s, depression and the return of unionism in

the 1930s and the beginning of recovery at the very end of the decade. In summary, it was a dynamic period that helps to demonstrate how various factors affected the length of shifts for workers.

Such an endeavor is difficult and a comprehensive study is nearly impossible, especially within the constraints of a master's thesis. However, I have utilized three basic types of primary sources in order to have a fair and comprehensive scope. First, I have utilized union records to understand the importance of the issue among workers and to learn of their demands and contracts. I chose the records of the Amalgamated Association of Iron and Steel Workers as the primary union records of the project as this was the major trade union that dealt primarily with steel workers at the time. Second, I have used company records to estimate the length of the workday for various departments and occupations. The primary records I used for this were those of the Duquesne Works, a plant of the Carnegie Steel Company, a subsidiary of U.S. Steel beginning in 1901. Last, I analyzed the records of the United States Department of Labor in order to have an understanding of general averages and trends of the industry. Although neither simple nor exact figures are attainable, I hope to be able to give a good estimate of the length of the work shift at the time. I also hope to shed light on the various factors that affected the length of the workday for workers and how and why it changed the way it did throughout the period. If the project achieves these goals or if it at least brings some interest to a topic that has often been overlooked, I would view it as a success.

Chapter 1

Historiography and Writing about Worktime

Economic historian Robert Whaples posits that "workers' demands for shorter hours were often advanced with greater fervor than demands for higher wages."[1] Strong as this point is, it can be considered an understatement. American workers in various industries fought for shorter workweeks throughout the nineteenth and twentieth centuries, and the steel industry is probably the best-known example. Countless strikes owe their birth to the push for shorter working hours and the steel strike of 1919 is only one of the most obvious.

The motivation among workers for a reduction in work hours has its basis in the fact that they toiled through long work shifts. Due to this phenomenon, the steel industry became known for the hours to which its workers were subject. The late nineteenth and early twentieth-century steel industry was the exemplar of excessively long workweeks and became infamous for the eighty-four hour week. Not surprisingly, many authors have focused on this aspect and the eighty-four hour workweek in steel has, in many ways, become a paradigm for excessive hours of work.

It is no coincidence that much of the work accomplished on this issue occurred during the Progressive Era in the United States. Most of the people who did studies on conditions in the industry, who interviewed workers and attempted to find resolutions to unsafe and undesirable conditions were progressives by every aspect of the definition. Their main concern was not an empirical survey of work hours or conditions, but a

[1] Robert Whaples, "Winning the Eight-Hour Day, 1909-1919", *The Journal of Economic History*, Vol. 50, No. 2 (June, 1990): 393.

greater public awareness of the problems that plagued workers. They were less concerned about preserving data for future generations than they were about improving the lives of the workers that they studied.

One of these early progressives and one who emphasized the significance of the eighty-four hour workweek was John Andrews Fitch. Fitch made a number of contributions to the field, primarily focusing on how many of the problems of the steel industry affected the lives of workers. Possibly the most famous work in which he participated was the Pittsburgh Survey in 1907, a study of working conditions in the mills of Allegheny County, Pennsylvania. His famous book, *The Steel Workers*, grew out of the Pittsburgh Survey. He focused on a number of issues, but especially analyzed the effects of long work shifts in the lives of workers. Fitch worked hard in finding the many problems that arose from extended working hours, including the negative impact on families, lack of leisure time and even interaction among workers on different schedules. Quoting one worker, "it must be hard for the twelve-hour men to have to work alongside of us eight-hour men. . . . The eight-hour men get a lot more pleasure out of life than the twelve-hour men do." Fitch did note that the length of the workday depended largely upon whether the worker was skilled or unskilled. For example, the blast "furnace man gets rather low wages for a twelve-hour day and seven-day working week, while the steel pourer is well paid and works eight hours a day for six days in the week." [2]

Fitch attributed the demise of unionism in the steel industry in Allegheny County at the end of the nineteenth century to the fact that there "has come an increase in hours until the eight-hour day has practically disappeared." His estimate at the beginning of the twentieth century was that "a majority of the employes engaged in processes of making

[2] John A. Fitch *The Steel Workers*. (New York: Charities Publication Committee, 1911), 12.

steel work twelve hours."[3] Mentioning specifics, his survey of six departments in a single mill in Allegheny County in October of 1907 shows that nine employees were working eight-hour days, 721 were working ten, sixty-eight were working eleven and 2,935 were working twelve.[4] In summarizing "the weekly schedule in 1907-08 in the Allegheny County plants," the average week for 60 percent of the Blast Furnace Department was eighty-four hours while 40 percent was seventy to eighty-four hours. For the Bessemer Department, schedules included "48 hours for a few, 72 hours for the majority," while in the Open-Hearth Department the trend was "78 to 84 hours" in a week. Finally, the Rolling Mills consisted of "72 hours for 95 per cent of the force, 84 to 91 hours for 5 per cent."[5]

The impact of long hours was also a major concern for Fitch's colleagues on the Pittsburgh Survey. Margaret Byington studied the household life and income of the working-class, using Homestead, Pennsylvania as a case study. In *Homestead: The Households of a Milltown*, Byington mostly focuses on the income of households and families, but also treats the issue of worktime. In the first decade of the twentieth century, certain departments at Homestead were working continuously and she tied this aspect to worktime as she mentioned that, "in order that the mills may run practically continuously, the twenty-four hours is divided into two shifts." Because of this, the workers "for the most part keep it up twelve hours a day." Not all of the departments were continuous. Most did "work the full seven days out of seven," although a minority of about one-fifth did have Sunday free from work. Included in a footnote was the concession that

[3] *Ibid.*, 5.
[4] *Ibid.*, 171.
[5] *Ibid.*, 176.

"mechanics, and day laborers in the yards work ten hours a day."[6]

Crystal Eastman focused on accidents on the job in *Work-Accidents and the Law*. Of particular relevance was her insistence on the importance of a reduction in the length of work shifts for safety considerations. Due to the intrinsic nature of work in the steel industry, "a moment's lapse in agility and watchfulness may mean death." In her view, "one way to lessen the number of such accidents would be still further to reduce the hours, and shorten the shift."[7]

Also important in the Pittsburgh Survey and one of the pioneering analysts of labor in the United States was John R. Commons, who was a mentor of John Fitch for a number of years. Possibly his most important book, *History of Labour in the United States*, which was a collaboration among a number of authors, treats extensively the issue of worktime, including legislation on worktime as well as the importance of the eight-hour movement. Elizabeth Brandeis focused on legislation that sought to limit the workday to eight hours.[8] Selig Perlman studied the eight-hour movement and its importance for union organization.[9] There was an abundance of additional writing and analysis on the issue throughout the Progressive Era and for some time afterward. The Department of Labor, originally the Bureau of Labor, tracked the length of shifts for various types of workers beginning in the nineteenth century. Concerns over hours of labor was not limited to scholars and the government, but had spread to publicly spirited citizens' groups. One such instance was the *Report on the Steel Strike of 1919* by the

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[6] Margaret F. Byington *The Households of a Mill Town* (Pittsburgh: University Center for International Studies, 1974 (1910)), 36.

[7] Crystal Eastman, *Work-Accidents and the Law* (New York: Russell Sage Foundation, 1910), 56.

[8] Elizabeth Brandeis, "Labor Legislation" from John Commons, *History of Labour in the United States*, Vol. III (New York: Macmillan, 1935), 540-41.

[9] Selig Perlman, "The Eight-Hour Strikes" from Commons, *History of Labour in the United States*, Vol. II, 377-78.

Interchurch World Movement. Such progressive-minded organizations hoped to influence the opinions of both government officials and the public to effect change for many in the working class. For example, one such recommendation by the Interchurch World Movement to bring about greater cooperation between labor and management was to "inaugurate immediate conferences between the Steel Corporation and its employees for the elimination of the 12-hour day and the 7-day week."[10]

As the Progressive Era faded away, the interest among social critics concerning worktime in the steel industry subsided. This is not to say that the issue was no longer important for the workers. On the contrary, workers continued to experience the ordeal of long hours and many strikes over the issue made it clear to the general public that it continued to be important. One book that brought about a greater interest in the conditions of the steel industry was *Out of This Furnace* by Thomas Bell. This book was not a scholarly work but a historical novel, although its importance was great due to its ability to spark interest among readers about the steel industry. Most importantly for historians, it helps to demonstrate the general notion of the public in regards to the steel industry. Published in 1941, it tells the story of three steelworkers from successive generations in Braddock, Pennsylvania, beginning at the end of the nineteenth century. Bell almost universally chooses protagonists who work in the blast furnace department, all of whom work eighty-four hour weeks. In describing the work life of the first generation of the book, Bell notes that one of the major characters, Kracha, "worked from six to six, seven days a week, one week on day turn, one week on night. . . . At the end of each day-turn week came the long turn of twenty-four hours, when he went into the mill

[10] Interchurch World Movement, *Report on the Steel Strike of 1919* (New York: Harcourt,Brace and Howe, 1920), 17.

Sunday at six and worked continuously until Monday morning."[11] Despite thse long days, periods of labor turmoil or simply poor economic conditions could lead to a meager number of shifts. The principal character of the second generation in Bell's book, Mike Dobrejcak, at one point "was getting only three turns a week, and the first of the year the company announced a wage cut."[12] This continued for the next generation as well. During one economic downturn, "the company cut wages ten per cent in October and an additional fifteen per cent the following May. By that time it hardly mattered; under the company's work-spreading scheme Dobie was getting only two days' work a month."[13]

The work of David Brody following the Second World War brought academic study of the industry to a new level. His work, *Steelworkers in America: The Nonunion Era*, is especially useful for understanding many of the problems that brought about a resurgence in unionism in the twentieth century. He does not ignore the issue of work hours, as some of his predecessors had. His work focuses on the importance that technology played in extending the time workers spent on the job. This was particularly true with continuous production. He noted that "when integration was perfected, the temptation grew to extend the seven-day schedule to Bessemer converters and rolling mills." The extension of the workweek was evident with his claim that "keepers in Ohio blast furnaces in 1882 averaged 77 hours a week, laborers 64 hours; in 1910, for the entire country, keepers worked 83.9 hours and laborers 72.6 hours."[14] He also emphasizes the role that worktime had in bringing about strikes, especially that of 1919. The strike at

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[11] Thomas Bell, *Out of This Furnace: A Novel of Immigrant Labor in America* (Pittsburgh: University of Pittsburgh Press, 1976 [1941]), 47.
[12] *Ibid.*, 145.
[13] *Ibid.*, 266-67.
[14] David Brody, *Steelworkers in America: The Non-Union Era* (Cambridge: Harvard University Press, 1960), 38.

Bethlehem Steel in 1910 was also due largely to long work hours as well as the speed-up. The report on the strike by the Bureau of Labor helped to bring about a new campaign for the eight-hour day.[15]

It was not only in *Steelworkers in America* that Brody analyzed the topic of worktime. Because of its importance, he treated the issue on a number of occasions in other works. In *Labor in Crisis*, he pointed out the effects of the First World War on the shifts of workers. Because of the increased demand for industrial products for the war, the seven-day week "reappeared in continuous-operation departments," although it had "been largely abandoned by 1915." The number of hours that workers spent on the job each day increased as well. According to Brody, "the twelve-hour day was more widespread in 1919 than it had been in 1911." The lengthening of the workday would be one of the main concerns of workers who would leave their jobs during the strike of 1919.[16] Brody has also focused on the issue of worktime in the history of labor as a whole with his book, *In Labor's Cause: Main Themes on the History of the American Worker*, which studies the history of the ten-hour movement as far back as the beginning of the nineteenth century.[17]

More generally, numerous economic and labor historians have examined the changing hours of work over the era of industrialization. Jeremy Atack and Fred Bateman have collaborated on a number of projects. In particular, they have helped to form a good estimate of the length of the workday in the early days of the steel industry in "How Long was the Workday in 1880?" They found that among steel plants, "18 percent" in the

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[15] *Ibid.*, 161.

[16] David Brody, *Labor in Crisis: The Steel Strike of 1919* (Westport, Connecticut: Greenwood Press, 1965), 71.

[17] David Brody, *In Labor's Cause: Main Themes on the History of the American Worker* (New York: Oxford University Press, 1993).

summer "reported working 12 hours a day compared with only 7.5 percent among all industries, while almost 7 percent worked an eight-hour day in contrast to about 3 percent across all industries." In the winter, "13.5 percent worked 12 hours and 13.5 percent also worked eight" in the steel industry. "Nevertheless, 10 hours was the most commonly scheduled shift even in those industries where continuous production processes were more common." This is of particular interest because they found that even in plants with continuous production, there is no "definitive reason a priori to suppose that the use of shift workers should result in the complete and even division of the available 24 hours." This is because "the time between shifts might be instead used for routine maintenance, repair, cleaning, or supply."[18]

Martha Shiells has examined the length of the workday in the iron and steel industry between 1890 and 1923. In speaking of the shift system, she agrees with Atack and Bateman that "even in continuous-operation departments, not all occupations were on the shift system. Many laborers, machinists, and other auxiliary workers were on one daily shift of ten hours." Shiells posits that "the extension of the twelve-hour day was complete" by 1890 and "spread with the technological revolution in steelmaking, which brought lessened physical effort, lower skill requirements, and increased vertical integration." In terms of specific numbers, she comes to the conclusion from government labor sources that "69 percent of blast furnace workers and 76 percent of open-hearth workers worked twelve-hour shifts in 1910."[19]

The view of Paul Krause is that the fall of the union after the strike and violence

[18] Jeremy Atack and Fred Bateman, "How Long Was the Workday in 1880?" *The Journal of Economic History*, Vol. 52, No. 1 (Mar., 1992): 144.

[19] Martha E. Shiells, "Collective Choice of Working Conditions: Hours in British and U.S. Iron and Steel, 1890-1923," *The Journal of Economic History*, Vol. 50, No. 2 (Jun., 1990): 380-81.

at Homestead in 1892 had a direct impact on the expansion of the twelve-hour day in the industry, especially in the Monongahela Valley. As he states in *The Battle for Homestead, 1880-1892*, "without the encumbrance of the union, Carnegie was able to . . . impose twelve-hour workdays." For Krause, the major factor in the growth of the twelve-hour day and the eighty-four hour week was the fact that the union was no longer able to fight for the men, due in part to the changing technology of the industry, allowing Andrew Carnegie to extend their shifts.[20] David Montgomery is more specific with the actual number of men at Homestead who worked twelve-hour shifts after the strike of 1892. He believes that approximately one-third, or slightly more, worked the twelve-hour shift in 1890s Homestead.[21]

Thomas Misa has treated the relationship between the growth in technology and the extension of the eighty-four hour workweek. In contrast to the notion that the extended work hours in the 1890s were due primarily to the fall of unionism, he claims in his book, *A Nation of Steel*, that it resulted from technological development. The extended hours were not merely an outcome of the lost strike in 1892, but were actually part of the 1892 conflict. Other Carnegie Steel Company mills, including the Duquesne and Edgar Thomson Works, had already been technologically updated by the strike of 1892. Many of the workers fought against the new technology, which, in turn, brought about longer shifts. This was not necessarily the desire of management, however. The new technology required that companies retool their mills, or they would fall behind competitors and find themselves out of business. He terms this phenomenon "forced

[20] Paul Krause, *The Battle for Homestead, 1880-1892: Politics, Culture, and Steel* (Pittsburgh: University of Pittsburgh Press, 1992), 361.
[21] David Montgomery, *The Fall of the House of Labor: The Workplace, the State, and American Labor Activism 1865-1925* (Cambridge: Cambridge University Press, 1987), 41.

technology choice."[22] Despite this great technological change, not all workers found themselves on the job longer. Misa relied on the work of historian Irmgard Steinisch,[23] which concluded that the percentages of workers in 1910 that worked eighty-four hour weeks "were blast furnace (67 percent), Bessemer (17 percent), open hearth (21 percent), puddling (0.14 percent), rolling mill (6 percent), tube mill (0.39 percent). The percentage of all steel- and rolling-mill workers with regular weeks of eighty-four hours was 10.85 percent, with seventy-two hours or more, 43.69 percent, with sixty hours or more, 80.42 percent."[24] Based on these findings, Misa claims that only a minority of steel workers in 1910 worked the eighty-four hour, or even the seventy-two hour, week.

Historian Karen Olson argues differently. In her study of the Bethlehem Steel Company's Sparrows Point plant, she notes that early in the twentieth century, there were "two shifts in order to maintain operation of the mill around the clock, seven days a week." Among the two shifts, "the day shift worked eleven hours a day, seven days a week" and "the night shift worked thirteen or fourteen hours a day, and on Sunday when the shifts changed the night shift worked twenty-four hours straight."[25] She believes that workers made little progress on the issue of worktime in the first three decades of the twentieth century. According to her, "complaints about the long hours imposed on American steelworkers were widespread but ineffective until the 1930s when New Deal

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[22] Thomas J. Misa, *A Nation of Steel: The Making of Modern America, 1865-1925* (Baltimore: Johns Hopkins University Press, 1995), 276.

[23] Irmgard Steinisch, *Arbeitszeitverkurzung und sozialer Wandel: Der Kampf um die Achtstundenschicht in der deutschen und amerikanischen Eisen- und Stahlindustrie, 1880-1929* (Berlin: Walter de Gruyter, 1986), 173-79.

[24] Misa, *A Nation of Steel*, 351.

[25] Karen Olson, "The Gendered Social World of Steelmaking: A Case Study of Bethlehem Steel's Sparrows Point Plant," from John Hinshaw and Paul Le Blanc, ed.s, *U.S. Labor in the Twentieth Century* (New York: Humanity Books, 2000), 105.

standards reduced the hours to eight."[26]

James Rose offers a different perspective in his comprehensive work on the Duquesne Works, which was located outside of Pittsburgh in Duquesne, Pennsylvania, in *Duquesne and the Rise of Steel Unionism*. According to him, there was a general labor peace at Duquesne in the 1920s. This would not have been possible were it not for "industrial stability, which provided regular employment, steady wage rates, and a reduction in work hours." The abolishment of the twelve-hour day by U.S. Steel in 1923 significantly contributed to this peace, as "the steel industry suffered seventy-six strikes in 1919, twenty-five in 1920 and again in 1921, and only two a year in 1926, 1927, and 1928."[27]

John Hinshaw argues similarly to Misa in that the changing technology was the ultimate cause in the lengthening of the workday in the steel industry. In *Steel and Steelworkers: Race and Class Struggle in Twentieth-Century Pittsburgh*, Hinshaw asserts that "the introduction of labor-saving devices accompanied a dramatic increase in the workday of steelworkers." His estimates are that the "average steelworker" was on the job between seventy-two and eighty-four hours each week, working even six or seven days. U.S. Steel put an end to the seven-day workweek in 1911, but he describes the modernization of the steel industry at the beginning of the twentieth century with the description that "in technical terms, the industry modernized; in social terms, steel became increasingly barbaric."[28]

Although many have included at least some consideration of the length of shifts in

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[26] *Ibid.*, 124.
[27] James D. Rose, *Duquesne and the Rise of Steel Unionism* (Chicago: University of Illinois Press, 2001), 41.
[28] John Hinshaw, *Steel and Steelworkers: Race and Class Struggle in Twentieth-Century Pittsburgh* (Albany: State University of New York Press, 2002), 26.

their work, some authors have made either little or no mention of it. In his analysis of black steelworkers, *Out of this Crucible: Black Steelworkers in Western Pennsylvania, 1875-1980*, Dennis Dickerson makes little mention of worktime. Even in examining the steel strike of 1919, he merely states that unions struck because they were "anxious to receive increased in pay, an eight-hour day, as well as union recognition."[29] It would have been interesting to learn how the length of shifts for African Americans compared to other steelworkers. Lizabeth Cohen also gives the issue little attention in her book *Making a New Deal: Industrial Workers in Chicago, 1919-1939*. It deals extensively with the 1919 steel strike, although she only mentions that some of the steel companies in the area began considering the working day as eight hours, although it was "still twelve hours work but at overtime rates after eight hours."[30] Little mention of worktime by these authors does not make their works atypical. There are many works that have paid little heed to the issue, focusing on other aspects of labor history such as wages and union recognition.

Despite its importance and all of the writing concerning it, a comprehensive study on the issue of worktime in the United States steel industry remains lacking. There has been considerable study on various aspects of worktime, and there have been general conjectures as to the length of the work day in the steel industry. Serious analysis of primary sources have not been abundant.

Because of the importance of the issue of worktime, it is impossible to fully understand the steelworkers and the industry without having a strong grasp of the issue.

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[29] Dennis C. Dickerson, *Out of the Crucible: Black Steelworkers in Western Pennsylvania, 1875-1980* (Albany: State University of New York, 1986), 88.

[30] Lizabeth Cohen.*Making a New Deal: Industrial Workers in Chicago, 1919-1939*. (New York: Cambridge University Press, 1990), 40.

This comprehensive study on worktime in the steel industry should help in some degree to fill the void and will hopefully add to the depth of the works of historians such as Brody, Atack and Bateman, Hinshaw, and Misa. I have chosen to study the years from 1870 until 1939. This was the transformative period for the steel industry in the United States. At the beginning of the period, the steel industry was a small but growing industry in a country that was attempting to industrialize. By the end of it, the country was moving into world war in a strong position due to its extensive manufacturing industries. The years in between saw booms and busts that ranged from the panic of the 1890s to the depression in the 1930s and a whole host of strikes and incidents of labor turmoil. Railroad property was burned in the 1870s, men died on the banks of the Monongahela at Homestead in 1892, and a nation of workers protested a whole host of issues in 1919. Unions also went from a small, but growing force in the 1870s to battered and defeated organizations in the 1890s and a promising movement that had some protections under the law in the 1930s. But amid all these changes, hours of work remained a predominant concern for the thousands of workers who made steel.

Chapter 2

The Changing Nature of Work

"At the fortieth second, nothing. At the fiftieth, still nothing. At the fifty-fifth, a loud cry was heard in the street. . . . At the fifty-seventh second the door of the saloon opened; and the pendulum had not beat the sixtieth second when Phileas Fogg appeared."[1] The fact that Phileas Fogg, the fictional character in Jules Verne's *Around the World in Eighty* Days, won his famous wager by seconds highlights the growing importance of time in industrializing nations by the nineteenth century. This cultural phenomenon became important to most people in society, including workers who often measured the length of time that they worked in diverse ways. Possibly the most fundamental measurement of the workday was the traditional method of beginning and ending the workday with the rising and setting of the sun. This was, and still is, particularly common in regard to agricultural work. Care of animals and fields, especially in the summer or at harvest, required constant work throughout the day and at least some work every day of the week, although various times of the year, such as winter, brought much slack time for farmers.

The growing specialization of craftwork and the development of industry fundamentally transformed work. Piecework remained common in many kinds of production, but as industries developed throughout the nineteenth century, they increasingly paid workers by the hours they worked. This was particularly true as technology developed and sought more unskilled workers than skilled ones. Many unskilled workers found themselves repeating the same tasks for their entire shift. As

[1] Jules Verne, *Around the World in Eighty Days*, trans. by George Makepeace (Mineola, New York: Dover Publications, 2000), 167.

employers began to measure the amount of work that their employees performed in a given day, their control over operations and their employees began to tighten.[2]

The first step in this labor reform was, ironically, the innovation-- or reform-- in marking labor by time. Manufacturers established time as one measurement of labor in their drive for efficiency and increased production. Workers, in turn, began to measure their workweek in increments of hours. Of course, this brought about a fundamental change as to how workers viewed their work. Gary Cross has commented on this radical shift, positing that "the wage earner experienced work as the marketing of minutes. What workers sold was the sacrifice of their time."[3] Since workers no longer labored on a product from start to finish, it was necessary for them to measure it in a different manner, which resulted in measuring it by time.

This occurred in various industries in the United States and became more predominant as the nineteenth century progressed. As the control of employers grew, they often divided work into various tasks needed to complete the finished product. Workers repetitiously performed these tasks did not have to be as familiar with every step in making a product and thus they could be less skilled. This process also further disassociated them from their work, changing it into a specific task done continuously over a period of time. What they were doing was less important to them since they were doing the same thing over and over again. More important was how long they were doing it.[4]

The goal of reduced worktime united workers by its broad attractiveness. Work

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[2] David Montgomery, *The Fall of the House of Labor: The Workplace, the State, and American Labor Activism, 1865-1925* (New York: Cambridge University Press, 1987), 29.
[3] Gary Cross, *Worktime and Industrialization* (Philadelphia: Temple University Press, 1988), 1.
[4] Thomas Dublin, *Women at Work: The Transformation of Work and Community in Lowell, Massachusetts, 1826-1860* (New York: Columbia University Press, 1993), 109.

has always been a tiresome prospect to most and the hope of shorter shifts, especially to those who were generally overworked throughout the nineteenth century, was an appealing prospect. This applied across ethnicities and also across gender, as men and women both were burdened with excessive work. The issue was not limited to one industry. Women at the looms in Lowell, transportation workers in major cities, clerks at department stores, laborers, workers in coal mines and steelworkers all hoped for shorter hours at their jobs. The movement lasted through much of the nineteenth century, but it became especially relevant with larger numbers of industrial workers in the century's final decades. In many ways, the conditions and workdays at steel mills became emblematic of everything the movement hoped to eradicate.

The earliest major success in reducing the workweek occurred among employees of the federal government. In the early decades of the nineteenth century, they primarily worked a twelve-hour day. During the Jacksonian era, many workers pushed for a ten-hour day and President Martin van Buren agreed to it for government employees in 1840. The majority of workers in the private sector continued to work longer. Although President Andrew Johnson shortened the workday to eight hours and the workweek to forty hours for some government employees in 1868, few other workers experienced such a short workweek.[5]

A push for a reduction in hours for women and children was an early social movement that eventually met with some success. For much of the nineteenth century, women were subject to working long hours in the textile industry, particularly in such locations as Lowell and Philadelphia. Young women dominated the workforce in the textile mills of Lowell in the first half of the century. Their close association in

[5] Joseph G. Rayback, *A History of American Labor* (New York: The Free Press, 1966), 266.

boardinghouses and mills spawned a close-knit community that was conducive to organization. The first major issue that they protested as a united force was that of worktime. By the 1840s, the mill owners found their workforce organizing petition drives against twelve-hour days, along with thousands of other New England workers.[6] The issue was not limited to major textile locations, such as Lowell. The ten-hour movement of the 1840s spread to the far smaller textile mills of Allegheny City, Pennsylvania. Encouraged by state legislation in 1848 seeking to limit hours, the largely young, female workforce struck for a shortened day of ten hours with the same pay. The dispute lasted much of the summer of 1848 and spawned a brief riot, but workers did not win their demands.[7] But the movement in the textile industry spread to other industries and highlighted other problems that workers faced. Historian Thomas Dublin notes that the movement in the 1840s "was a broad reform movement that repeatedly overflowed its banks and stimulated interest in wide-ranging issues."[8]

States throughout the United States passed legislation throughout the nineteenth century to restrict hours of work. Pennsylvania's 1848 law stated that "labor performed during a period of ten hours in any secular day, in all cotton, woolen, silk, paper, bagging, and flax factories, shall be considered a legal day's labor, and that hereafter no minor or adult engaged in any such factories shall be holden or required to work more than ten hours in any secular day, or sixty hours in any secular week."[9] A number of states passed similar laws, and in April 1868, the Pennsylvania legislature declared that eight hours was "a legal day's work, in all cases of labor or service by the day, where there is no

[6] Dublin, *Women at Work*, 119.
[7] Monte A. Calvert, "The Allegheny City Cotton Mill Riot of 1848," *The Western Pennsylvania Historical Magazine*, Vol. 46, No. 2 (April, 1963): 103.
[8] Dublin, *Women at Work*, 131.
[9] Section 1, as quoted in John R. Commons, *A Documentary History of American Industrial Society*, Vol. 8, 200.

contract or agreement to the contrary."[10] Another Pennsylvania law in 1894 declared that "eight hours of labor between the rising and the setting of the sun, shall be deemed and held to be a legal day's work." The problem with such legislation across the United States was that the courts, allied with employers to insist that these laws must allow workers the "right" to make their own contrasts for longer hours. States had to allow such an exception to the laws, or otherwise see the courts reject them. In the Pennsylvania law of 1894, for example, the legislature demanded the eight-hour day only "where there is no contract or agreement to the contrary," and that no person shall "be prevented, by anything herein contained, from working as many hours overtime or extra work, as he or she may see fit; the compensation to be agreed upon between the employer and the employee."[11] These exceptions made the laws unenforceable. Nevertheless, the laws represent a strong desire among workers and even legislators to limit the length of shifts.

The eight-hour movement was particularly influential in a number of industries in England, particularly in the coal industry.[12] In the United States, the eight-hour movement began after the end of the Civil War, with countless workers echoing the famous phrase, "eight hours for work, eight hours for rest, eight hours for what we will." The issue of work hours united workers across industries. As historian Robert Whaples notes, "it was the spark that helped found the first national labor union in the 1860s and the American Federation of Labor in the 1880s, the major issue in the steel strike of 1919, and remained important into the 1930s."[13]

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[10] Kevin Kenny, *Making Sense of the Molly Maguires* (New York: Oxford University Press, 1998), 114

[11] United States Department of Labor, Bureau of Labor Statistics, *Labor Laws of the United States, with Decisions of Courts Relating Thereto*. Washington, DC: Government Printing Office, 1914, 1791.

[12] For a study on the eight-hour movement in England, see B. McCormick and J.E. Williams, "The Miners and the Eight-Hour Day, 1863-1910," *The Economic History Review*, New Series, Vol. 12, No. 2 (1959): 222-238.

[13] Robert Whaples, "Winning the Eight-Hour Day, 1909-1919", *The Journal of Economic History*, Vol. 50,

Union leaders responded to workers' concerns over their hours to use the issue as an organizing tool. Terence Powderly of the Knights of Labor even claimed that "the demand for a reduction of hours of labor to eight per day . . . did not assume very great proportions until the Knights of Labor took up the question." In fact, other groups, including the Socialist Labor Party and the Federation of Organized Trades and Labor Unions, soon to become the American Federation of Labor, did more to revive the eight-hour movement in the 1880s, calling for the eight-hour day to begin on May 1, 1886. Paul Avrich has claimed that discussion of the eight-hour day "by the early weeks of 1886 . . . had become the all-absorbing topic in labor circles."[14]

In many ways, the violent incident at Haymarket Square in Chicago on May 4 was the culmination of the drive for the eight-hour movement in 1886. The general strike had some success beginning on May 1, but the bombing in Chicago's Haymarket on May 4 resulted in the fatal wounding of "seven policemen and an unknown number of civilians." In addition, "six other officers died from their wounds during the next few weeks." One estimate concluded that there were sixty-seven "casualties" from the episode.[15] The violence blunted whatever success the strike achieved and no massive numbers of men won the eight-hour day, although the episode may have raised some consciousness. In reality, much of the public simply made a connection between violence and labor unions, heightening their suspicions of unions.[16]

Economic historian Robert Whaples rightly insists that "workers' demands for

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No. 2 (June, 1990): 393.
[14] Paul Avrich, *The Haymarket Tragedy* (Princeton: Princeton University Press, 1984), 181-82.
[15] *Ibid.*, 208.
[16] *Ibid.*, 215.

shorter hours were often advanced with greater fervor than demands for higher wages."[17] In a period that saw workers divided by nationality, skill and even by the departments in which they worked, unions had trouble unifying workers, with one of few exceptions being worktime. As steel historian James Rose has noted, workers were able to unite over the issue of hours of work precisely because all of them tended to work long hours. Despite variation in work hours among different positions, workers found it easier to unite on shorter hours, unlike the issue of wages in which unskilled workers earned below a subsistence level and many skilled workers could earn a comfortable living.[18]

Still, the issue of work hours was a most complicated one. Work hours fluctuated from job to job, industry to industry and, even within these categories, from month to month. Skill played a significant role in determining the length of work. Unskilled workers had less bargaining power and typically experienced longer workweeks than many skilled workers. Fluctuations in the length of the workweek also occurred due to the time of the year or the season. For example, summer often saw increased demand for steel when construction and building occurred, while demand usually slackened in the winter. This fact became prominent during the Homestead strike of 1892, when management desired to base the scale of pay on the price of steel in the winter months when it was at a lower price, while workers wanted it based on the price in summer months when demand and prices were high.[19]

Extended work hours did have some benefits as they helped to increase the pay of workers. Prominent among those who sought as much work as they could get were young

[17] Whaples, "Winning the Eight-Hour Day," 393.
[18] James D. Rose, *Duquesne and the Rise of Steel Unionism* (Chicago: University of Illinois Press, 2001), 18.
[19] *U.S. House of Representatives Report Number 2447*, from Demarest, David P. Demarest, Jr. *The River Ran Red: Homestead, 1892* (Pittsburgh: University of Pittsburgh Press, 1992), 29.

immigrants from Europe who would often work in the United States for a period of time to earn money to send home.[20] As more immigrants settled in America, they became more concerned with the strain long hours represented. Longer hours tended to increase the number of on-site injuries as workers grew either tired or weak toward the end of their shifts. Longer work hours also deprived workers of leisure time as workers sought it more vigorously, as is evidenced by the push for additional recreational facilities in cities throughout the country, like Worcester, Massachusetts from the 1870s.[21]

Possibly more detrimental to workers than extended work hours was a lack of work. The anthracite coal industry was particularly notorious for this, due to overproduction and low demand. The anthracite miners, for example, "averaged 209.2 full ten-hour days of work per year" in the 1880s. Thomas Daley, an immigrant, experienced this problem as he found little work in the mines, working ten days in December 1899, while trying to support a family.[22] A sluggish economy would often bring about a drought in demand which would decrease production and available hours of work. Many faced the possibility of job loss and many more experienced decreases in work hours and pay. Strikes, lockouts, and poor economic conditions were the most dangerous events for workers as they threatened to eliminate their pay or to decrease it for weeks or even months. It should be remembered that, although unions and workers were often responsible for strikes, many workers who faced strikes did not desire them. For workers who relied on all of the money of a paycheck, the loss of work for even a week or two could deplete the savings of years. It was because of the twin dangers of

[20] John Bodnar, *The Transplanted: A History of Immigrants in Urban America* (Bloomington; Indiana University Press; 1987), 24.
[21] Roy Rosenzweig, *Eight Hours for What We Will: Workers and Leisure in an Industrial City, 1870-1920* (New York: Cambridge University Press, 1987), 128.
[22] Perry K. Blatz, *Democratic Miners: Work and Labor Relations in the Anthracite Coal Industry, 1875-1925* (Albany: State University of New York Press, 1994), 11.

shortened and extended work hours that workers constantly viewed the hours they worked with caution. In addition, work hours often coincided with hourly wage rates. The steel industry was much less constant than the rest of the country in this regard. During the recession of 1904, for example, while the hourly wages of much of the country fluctuated little, "in steel they fell nearly 20 per cent in some occupations."[23]

A number of historians have carefully studied national and industry averages for hours of work. Michael Huberman has calculated both the median and average number of work hours per week in the major industrializing nations between 1870 and 1899, with the median and mean varying within an hour or two. The typical workweek among all industries in the United States was about average. And although there were a number of nations that had longer workweeks than the United States, some of the nations that were most similar to the United States, such as Great Britain, experienced shorter workweeks. Great Britain, which industrialized earlier than other nations, led the way in abbreviated work hours. In the closing decades of the nineteenth century, it had relatively short workweeks, averaging 55.0 hours, second only to Australia, which averaged an amazingly short workweek of only 49.7 hours. Countries that experienced the longest workweeks included Sweden with 68.2 hours and Belgium with 67.7 hours. The United States tended toward the average of 60.3 hours.[24]

The steel industry averages tended to be slightly above the general average of each country, although there were some exceptions. Again, the shortest workweeks in the iron and steel industry were in Australia with 49.3 hours per week followed by Great

[23] David Brody, *Steelworkers in America: The Non-Union* Era (Cambridge: Harvard University Press, 1960), 43.
[24] Michael Huberman, "Working Hours of the World Unite? New International Evidence of Worktime, 1870-1913," *The Journal of Economic History*, Vol. 64, No. 4 (Dec., 2004): 970-971.

Britain with 56.7 hours per week. The longest workweeks were in Sweden, which had 70.0 hours per week, and Belgium with 68.1 hours per week. The United States again was nearly average among countries with an average workweek of 60.8 hours.[25]

There were significant variations among particular industries in the United States. Jeremy Atack and Fred Bateman collaborated on a particularly useful study for understanding the general length of the workday for each of the major industries in 1880. They posit that "the average worker worked within a couple of minutes of 10 hours a day."[26] As expected, the iron and steel industries were among those with the longest day. Other industries with longer days included the textile and chemical industries. The ten-hour days are presumably six-day weeks, which would average a sixty-hour week. Atack and Bateman noted that some plants in the iron and steel industry had twelve-hour days and eighty-four hour weeks in 1880 in some plants. While above the national average of about ten hours, only "18 percent of firms" in the summer and "13.5 percent" in the winter worked twelve-hour days. Regardless of some firms that reported longer work hours, "10 hours was the most commonly scheduled shift even in those industries where continuous production processes were more common."[27]

Such a generalization helps to explain the average work hours that a worker experienced in 1880, but it still is incomplete in two respects. Using a fixed date, 1880, helps to maintain consistency, but it fails to demonstrate the development and change in work hours through the decades. Atack and Bateman's data does not differentiate work hours among occupations, but these variations among occupations and even companies

[25] *Ibid.*, 970-971.
[26] Jeremy Atack and Fred Bateman, "How Long Was the Workday in 1880?" *The Journal of Economic History*, Vol. 52, No. 1 (Mar., 1992): 142-143.
[27] *Ibid.*, 144.

are significant, since no general average of an entire industry can give a full picture of the complexities of worktime.

In steel, those complexities cannot be separated from the ongoing modernization of the industry. Mechanization significantly reduced the skill level in many positions. This, in turn, created more demand for unskilled workers, which attracted even more immigrants from Europe. It also gave management greater control over workers. By the 1880s and especially the 1890s, skills were becoming less important than mere physical labor, particularly basic actions that were simply repeated for hours on end. Historian Eric Arnesen points out that "the intensification of labor (simply forcing workers to work harder, faster, and longer), mechanization (using machinery to substitute less skilled labor for craftsmen), [and] the reorganization of the production process itself" was, in its common denominator, an "assault on the skilled craftsmen" that "produced an ongoing battle for control of the shop floor that often would break out into large-scale battles between unions and managers in the 1890s and the early twentieth century."[28]

The skilled craftsmen's battle in steel was made especially difficult by several interwoven factors: technological change, immigration and the increased use of unskilled workers. Technology allowed for a decrease in the skilled workforce as it helped to make the process of making steel simpler for workers, and immigration provided a large supply of unskilled workers in search of employment. Underlying these issues was the fact that workers were losing the control they had over the workplace. This brought about greater management control, which manifested itself in demands for reductions in pay and longer hours that could lead to violence.

[28] Eric Arnesen, "American Workers and the Labor Movement," from Charles W. Calhoun (ed.), *The Gilded Age: Perspectives on the Origins of Modern America*. (New York: Rowman & Littlefield, 2007), 65.

As technology developed in the final decades of the nineteenth century, the skill requirements for many positions decreased. No longer were highly-skilled workers required for many of the vital aspects of millwork as machines simplified the process for making steel, requiring only muscle from many of the workers. The droves of "new" immigrants played into the hands of the steel corporations. As more and more jobs became less skilled, any unskilled worker was able to replace another, giving the individual worker little bargaining power. As more unskilled workers entered the mills, management tightened its control over the production process. As John Hinshaw notes, "new techniques provided by university-trained engineers, scientists, and chemists further increased managers' knowledge and control of the workplace." Especially by the beginning of the twentieth century, "the steel industry redesigned its workplaces to maximize production and minimize workers' control."[29] As management became more centralized, it began to have greater control over the plant. "For more and more wages earners, the power over their working lives receded far off into distant central offices and into the hands of men probably unknown to them even by name."[30]

More specific to worktime, technology undoubtedly determined the number of hours that men stayed on the job. To increase output and maximize profits, steelmakers moved toward continuous, twenty-four hour production in order to make the most of their investment in new machinery. As John Fitch noted in the first decade of the twentieth century, in previous decades there was a long process for heating steel, although by his time "the process of heating steel is not nearly so difficult." The furnace "can be charged

[29] John Hinshaw, *Steel and Steelworkers: Race and Class Struggle in Twentieth-Century Pittsburgh* (Albany: State University of New York Press, 2002), 26.
[30] David Brody, *Workers in Industrial America: Essays on the Twentieth Century Struggle* (New York: Oxford University Press, 1980), 8.

continuously, and there is nothing to interfere with continuous operation."[31]

The rise of the blast furnace contributed greatly to the extension of the work shift in steel. Some continuous supervision of the blast furnace was almost necessary because of the demographics of restarting them. Restarting a furnace was expensive so managers kept them running with as few breaks as possible. A U.S. Senate committee acknowledged the difficulties in the operation of "the blast-furnace department where there is a metallurgical necessity for continuous operation day and night throughout 7 days of the week."[32]

The extension of worktime in the steel industry should not merely be understood as an unplanned effect of the momentum toward continuous production generated by the Bessemer process and, later, the open hearth. Rather, the development of the Bessemer process was the result of years of attempts to design a way to limit the amount of skill required to produce steel and to do it more efficiently. Still, "Bessemer steelmaking in the late 19th century never achieved the engineering ideal of continuous processing," although "prodigious strides were made in this direction."[33] The Bessemer process never made the achievements in production and efficiency that would later be realized with the open hearth, but it did represent a major advance over the traditional method of puddling. All of this was part of management's ongoing effort to seize the control of the workplace, and consequently worktime, from the skilled artisans, such as the puddlers.

The development of the puddling process in the eighteenth century was actually an earlier attempt to limit the number and skill of workers. In fact, there had been several

[31] John A. Fitch, "Unionism in the Iron and Steel Industry," *Political Science Quarterly*, Vol. 24, No. 1 (Mar. 1909): 65.
[32] Senate Committee on Interstate and Foreign Commerce, *Control of Corporations, Persons and Firms engaged in Interstate Commerce*, S. Res. 98, 62d Cong. 2d sess., 1912,1198-99.
[33] David Jardini, "From Iron to Steel: The Recasting of the Jones and Laughlins Workforce between 1885 and 1896," *Technology and Culture*, Vol. 36, No. 2 (Apr., 1995): 275.

technological advances in the century or so before the Bessemer process captivated the industry from the 1850s. The potting process was an early innovation over another process called the "finery-chafery," and managers hoped that the innovation of puddling in the 1780s would improve efficiency and give them the upper hand in the iron-making process.[34] It proved to be more efficient than the potting process. The refining no longer occurred in pots, but in large furnaces, and "the fuel did not come into contact with the metal, but, instead, the heat generated by the coal fire was reflected . . . off the ceiling of the furnace onto the metal." This prevented many impurities from reaching the metal, thus limiting the number of times heating was required and the length of time needed for refining.[35]

Puddling was initially unsuccessful in reducing the need for skilled workers. During the refining process, it was necessary for workers to continue to monitor the heats, stirring the molten pig iron in the furnace. Puddling depended on the skill and experience of workers.[36] To end that dependence, "a seemingly endless stream of inventions . . . sought to remove this constraint by mechanically reproducing the motions of the puddler." All initial attempts at technologically eliminating the puddler met with failure "due to their inability to mimic the craftsman's judgment and dexterity."[37]

This was the state of the iron industry throughout much of the first half of the nineteenth century as owners hoped to free their shops from the control of workers but continually found themselves unable to do so. Despite initial complications, the Bessemer converter made mass production possible and reduced the amount of labor and skills

[34] Charles K. Hyde, *Technological Change and the British Iron Industry, 1700-1870* (Princeton: Princeton University Press, 1977), 83-84.
[35] *Ibid.*, 88-89.
[36] *Ibid.*, 88.
[37] Jardini, "From Iron to Steel," 277.

required. As historian Paul Krause notes, "the Bessemer process created the opportunity to break the monopoly of skill exercised by puddlers and to reinvent the production process in ways that allowed employers to administer the domestic economy of their manufacturing establishments more efficiently."[38] However, the process still necessitated the use of some skilled men and would be superseded by the open-hearth process, further enhancing the control of management.

The open-hearth process and the growing use of blast furnaces further accelerated the deskilling of the workforce, the growth of continuous production and, hence, the lengthening of shifts. The open hearth began to become the predominant method of mass producing steel in the 1880s.[39] With the growth of the open hearth, companies could produce cheap, high-quality steel with significantly fewer skilled workers than previously required with the puddling or even the Bessemer process. It is no wonder that puddling declined steadily in this period. With the shift from the highly-skilled puddlers, where "the quality of the wrought iron produced in the puddling furnace was directly proportional to the skill of the puddler and beyond that skill no scientific control was possible," to the open hearth, where scientific management was greatly intensified, control of the workforce clearly shifted to management, and workers found their shifts lasting longer.[40]

As management sought a less skilled workforce, streams of such men entered the country from southern and eastern Europe. These men had little bargaining power and few skills. They satisfied the demand for cheap labor. Most of them were quite young as

[38] Paul Krause, *The Battle for Homestead*, (Pittsburgh: University of Pittsburgh Press, 1992), 56.
[39] *Ibid.*, 64.
[40] James Aston and Edward B. Story, *Wrought Iron: Its Manufacture, Characteristics and Applications* (Pittsburgh: A.M. Byers, 1936), 10.

well, often single men hoping to earn as much money as they could in the shortest possible time. As a result, many were quite willing to work long shifts.[41] The massive increase in immigration coincided with the advance of the open-hearth process and continuous production. As more jobs were open for unskilled, hardworking men, more immigrants arrived to fill them.

Although fluctuations in the iron and steel industry usually did not drastically change overnight, one such exception occurred with the Carnegie Steel Company when it experimented with shorter work hours in 1877 at its Edgar Thomson plant. In line with the notions of time management fostered at the time and believed almost religiously by many, including Andrew Carnegie, the cut in worktime was an attempt to achieve greater efficiency at the plant. After successfully implementing what seemed to be every possible means of increasing efficiency and output, the superintendent of the Edgar Thomson Works in Braddock, Pennsylvania, William R. Jones, also known as Captain Jones because of his service in the American Civil War, proposed increasing the number of shifts from two to three per day, and thus reducing the number of work hours from twelve to eight per day.[42] This was to maximize workers' energy, since they seemingly had the greatest strength during the first eight hours but tended to lag in production during the final four hours of work per day.

The shortened shift allowed the workers to expend all of their energy during eight hours and allow them increased time to rest for the next shift, thus increasing their production.[43] Jones mentioned that he "discovered it was entirely out of the question to

[41] Bodnar, *The Transplanted*, 65.
[42] William Serrin, *Homestead: The Glory and Tragedy of an American Steel Town* (New York: Vintage Books, 1993), 45.
[43] Les Standiford, *Meet You in Hell: Andrew Carnegie, Henry Clay Frick, and the Bitter Partnership that*

expect human flesh and blood to labor incessantly for twelve hours." According to historian James Bridge, the successful implementation of the eight-hour day "proved to be of immense advantage to both the company and the workmen, the latter now earning more in eight hours than they formerly did in twelve, while the men can work harder constantly for eight hours, having sixteen hours for rest."[44] Although his motive was efficiency and not worker welfare, workers did have some allies in management realizing that working laboriously for twelve hours was not always feasible. Despite its apparent success, the eight-hour day at Braddock would not last long. After increased efforts at mechanization of the plant, there was a push by management to return to the twelve-hour day for many by 1887 and the eight-hour day effectively ended by 1888.[45] The ability for hours to change is particularly striking in the case of the Edgar Thomson Works. Workers at the Edgar Thomson Works were greeted with a notice that informed them that "it is understood and agreed that these Works will hereafter be run by *two (2) turns* as other Steel Rail Mills are."[46] The management of the Carnegie Steel Company was able to make a dramatic change in work hours with little useful opposition from workers. Clearly, the issue of work hours in the steel industry was not fixed.

Most plants had a similar logic as they extended their shifts as well, with the other Carnegie plants following suit shortly after Braddock. As more plants mechanized toward continuous production, most simply chose to extend the time workers spent on the job, rather than adding additional shifts, as David Brody mentions that "the logic for shorter

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Transformed America (New York: Crown Publishers, 2005), 51.

[44] James Bridge posits that the change occurred in 1888, although David Brody specifically mentions that it was in December of 1887. See James H. Bridge, *The Inside History of the Carnegie Steel Company: A Romance of Millions* (New York: Aldine Book Company, 1903), 188-89, and Brody, *Steelworkers in* America, 36.

[45] *Ibid.*, 190.

[46] "Notice to Our Employes," 1889, from Records of the Carnegie Steel Company, 1853-1912, Senator John Heinz History Center Library and Archives, Box 31, Folder 3.

hours weakened with advancing mechanization; men no longer kept pace with machines." The phenomenon continued and, "when the South Works in 1902 and the Joliet Works in 1904 put their remaining departments on twelve hours, the short turn practically ended in primary steel manufacture."[47]

However, this does not mean that all occupations required a worker at the plant constantly. Not all departments in a steel plant were continuous operation and even the ones that were did not necessarily continue production for an entire twenty-four hour period. Many were closed for a few hours each day for maintenance and other reasons. This was recognized even by contemporaries. No later than 1907 did Fitch acknowledge that "although operating with two crews, they did not work twelve hours. The mills would be idle three or four hours in a day. It was simply a method of limiting the length of the working day. For example, the 119-inch plate-mill at Homestead, which went over to the three-turn system in 1891, was operated until that year with two crews, and, in accordance with the general custom, it was not operated a full twenty-four hours in each day. One turn was eleven hours long and the other ten hours, leaving three hours during which the mill was idle."[48]

At the end of the nineteenth century and into the twentieth, steel had become the predominant product in the metals industry. Although the issue of worktime was integral in the everyday lives of the workers, little could be done to alleviate the trend toward a longer day, due to the weak state of the Amalgamated Association of Iron and Steel Workers. The failure of strikes in this period demonstrates such a phenomenon. After the failure of the 1892 Homestead strike, which many have viewed as a tipping point for

[47] Brody, *Steelworkers in* America, 36.
[48] Fitch, "Unionism in the Iron and Steel Industry," 65-66.

union decline and management control, "the union was finished in steel." National membership in the Amalgamated declined from twenty-four thousand to ten thousand after Homestead and the lack of unionism in the industry continued for several decades. The failure of the Amalgamated at a 1901 strike of U.S. Steel to unionize some of the skilled workers and a further failure in 1909, in which U.S. Steel declared an open shop, further demonstrate the failure of unionism in the industry at the time.[49]

There were a few bastions of union strength left in the metals industries, including in tin plate factories, where skilled workers were more predominant. In contrast to steel, where mass production led to continuous operation and longer hours, it was difficult to mechanize much of the work in tin plate mills "because of the thin gauges of the product." Consequently, "heating and rolling the sheets still required very skilled and experienced workers." And at the turn of the twentieth century, when the Amalgamated was declining in much of the steel industry, it concentrated on industries such as tin plate, where organization continued to be feasible.[50] As will be demonstrated in the following chapters, since skilled workers represented a larger percentage of sectors of the industry outside of basic steel, those workers tended to work shorter shifts.

[49] Hinshaw, *Steel and Steelworkers*, 26,33.
[50] Louis C. Martin, "Tin Plate Towns, 1890-1910: Local Labor Movements and Workers' Responses to the Crisis in the Steelworkers' Union," *Pennsylvania History: A Journal of Mid-Atlantic Studies*, Vol. 74, No. 4 (Autumn, 2007): 496, 501.

Chapter 3

Worktime in the Iron and Steel Industry Before the First World War

Initially after the Civil War, the iron industry was the dominant metallurgical industry in the country, with steel not becoming significant until the 1870s. And before technological advances came about, the iron industry was heavily reliant on skilled labor for production. Because of this, the steel industry would inherit from iron a strong tradition of craft unionism, worker control over production, and a workweek shorter than many steelworkers experienced decades later.

The iron industry that emerged after the Civil War and, later the steel industry, lagged well behind the federal government's progressive worktime standards. They did not follow the federal government's example under President Andrew Johnson, which shortened the workweek for federal employees to forty hours, with five eight-hour days. As discussed in chapter two, few industries met this progressive standard, certainly not iron and steel. According to Jeremy Atack and Fred Bateman, the most common workweek in the iron and steel industries in 1880 was a little over sixty hours, with six ten-hour days.[1]

As useful as the statistics supplied by Atack and Bateman are, they do not illustrate how iron and steel changed over time and how individual departments and occupations varied. With that being said, judging the exact figures for individual departments and especially for an entire plant can be difficult for any period, due to inevitable economic fluctuations and worker transiency. Data used throughout this chapter come from multiple sources. Government data collected from across the industry

[1] Jeremy Atack and Fred Bateman, "How Long Was the Workday in 1880?" *The Journal of Economic History*, Vol. 52, No. 1 (Mar., 1992): 144.

offer a general picture of average worktime in various regions and states. In addition, statistics compiled from worktime records of the Duquesne Works at the turn of the twentieth century will specify the hours worked by individual workers at an entire plant in an almost revolutionary time for the industry. Further information from union records provides an additional perspective. From these statistics it will be evident that change is often the only constant, for two reasons. First, the economy experienced several booms and busts throughout the period, affecting the amount of time workers spent on the job. Second, technological change would have a massive impact not just on jobs workers performed, but on the hours they worked.

Technological change revolutionized the metals industries in the final decades of the nineteenth century. With several significant technological advances, including the Bessemer process, the ability to make steel more cheaply initiated a decline in the iron industry and spurred the growth of the steel industry. The skilled puddlers who manually controlled the process of refining iron continued to exist but would decline until they became marginal players in the production of metals. The great desire for continuous production and the rapid growth of mass production, never completely achieved but greatly advanced by the Bessemer process, transformed the steel industry. Iron and steel companies either updated their technology in order to compete efficiently or they faced the consequence of marginalization. For example, the American Iron Works on Pittsburgh's South Side quickly understood the situation and acted accordingly. It began building a Bessemer steelmaking department in 1886, initially to complement the puddlers. Iron production quickly subsided and was halted just ten years later. By 1896, the American Iron and Steel Works produced only steel products and the puddlers were

effectively eliminated. The result was greater efficiency, greater production and a workforce largely composed of less-skilled workers who had less control over the production process.[2]

The length of work was relatively stable for iron workers in much of the nineteenth century. One estimate is that, prior to 1870, the workweek for most workers was generally 60.0 hours per week or less. This was especially true in the bar mills of iron plants, where workers used rolls "to reduce billets to smaller sizes and dimensions to meet commercial demands." There were two types of mills in the period. In what were called "hand mills," most of the work was done by hand with little or no mechanization involved. Workers used "no means other than tongs and hooks." But as technology revolutionized the steel industry in the following decades the bar mills became known as "mechanical mills," which utilized machinery far more extensively.[3]

One such occupation in the bar mills, that of the "catchers," required that "when the piece comes from the roughing rolls it is grasped with tongs" and then "the end put in the proper pass."[4] Many positions, including catchers, in bar mills in the state of New York, for instance, almost universally worked 60.0 hours per week from antebellum times through the final decade of the nineteenth century. In Ohio, they averaged 60.0 hours a week or less for most of the period. Despite the figure being 64.0 hours in 1885, it dropped to 57.0 in 1887 and continued a downward trend thereafter. By 1889, the workweek for them had dropped to 55.0 and then to 54.0 in 1892. There was a slight increase in 1895 back to 55.0 hours per week, but this figure dropped to 53.0 hours by

[2] David Jardini, "From Iron to Steel," "From Iron to Steel: The Recasting of the Jones and Laughlins Workforce between 1885 and 1896," *Technology and Culture*, Vol. 36, No. 2 (Apr., 1995): 281-282.
[3] United States Department of Labor, Bureau of Labor Statistics. *Wages and Hours of Labor in the Iron and Steel Industry*, No. 353 (Washington, DC: Government Printing Office, 1914), 24-25.
[4] *Ibid.*, 343-344.

1897.[5]

Rollers, another position in the bar mills, were "in charge of and responsible for the operation of the rolls." Their duties mainly consisted of "seeing that the proper rolls are installed, that they are properly set and kept in good condition, and that the rolling crew performs every part of its work properly." They usually were not new hires because it was a "very responsible position in which a thorough practical knowledge . . . is indispensable."[6] They had similar workweeks to that of the Catchers in the period, although some were longer in certain areas. Those in New York also had sixty-hour workweeks throughout much of the nineteenth century. In Ohio, though, this was more varied. Whereas those in the position were working 68.0 hours in 1877, they enjoyed a much shorter workweek of 57.0 hours in 1881. This figure did reach 63.0 hours in 1885, although this did decrease again to 60.0 by 1887, then to 56.0 in 1889, 55.0 in 1892 and 54.0 by 1897.[7]

The workweek was generally shorter for puddlers. Prior to the 1890s, their work hours varied considerably between states and various years. For example, in 1878, the worktime for puddlers in Ohio stood, on average, at 63 hours, while in adjacent Pennsylvania, it was only 58 hours. Only a few years later, the trends reversed with puddlers in Ohio on the job for 56 hours and those in Pennsylvania working 61 hours. In comparison, however, puddlers in Tennessee endured 75-hour workweeks that year. In 1889, puddlers in Alabama were working 48-hour weeks, while those in Illinois were working an average of 70 hours. The average in most other states that year hovered

[5] United States Department of Labor, Bureau of Labor Statistics, *History of Wages in the United States from Colonial Times to 1928*, Wages and Hours of Labor Series, No. 499. (Washington, DC: Government Printing Office, 1929), 239-240.
[6] United States Department of Labor, *Wages and Hours of Labor in the Iron and Steel Industry*, 343.
[7] United States Department of Labor, *History of Wages in the United* States, 242.

around 60 hours a week, with several, including Pennsylvania, Virginia and West Virginia puddlers working less than 60 hours.[8]

By the 1890s, the average for most of the country's puddlers was 60 hours or less. In that decade, the region with the longest average workweek was the South Central, which had 60.0 hour weeks consistently until the turn of the century. In contrast, the area with the shortest workweek was the North Central region, which is recorded as having 54.0 weeks every year that decade. In between the two were the North Atlantic and South Atlantic regions. The North Atlantic region fluctuated only a few hours a week each year, with a low of 55.4 hours in 1896 and a high of 59.9 hours in 1894. The South Atlantic region was similar, although it averaged a few hours less per week for most of the years. Its high in the decade was 57.0 hours in 1890 and 1892 and 54.4 in 1899, as there was a slight decline during the period.[9]

There was a moderate, albeit steady, decline during the first two decades of the twentieth century. In many ways, the decline in work hours parallels a decline in the position of the puddler. The Bessemer process and, later, the open hearth were gradually phasing out puddling and this was becoming more true in the twentieth century. By 1914, puddlers in the Eastern region were working 55.2 hours. This had declined to 52.3 hours in 1915. In the Pittsburgh region, the workweek was even less. In 1914, the workweek was, on average, 51.4 hours and it remained about steady in 1915, only slightly increasing to 51.7 hours. The Great Lakes and Middle West region was also comparable, with a workweek of 54.5 hours in both 1914 and 1915. Workers in the Southern region did not experience such a week. In 1914, they were on the job for 57.7 hours each week,

[8] *Ibid.*, 246.
[9] *Ibid.*, 247.

and this figure increased slightly to 57.9 in 1915. Puddlers in this region remained on the job longer than their counterparts in other regions for several years afterward.[10]

The workweek did not remain universal throughout the country either. Workers in different regions spent significantly varied lengths of time on the job. For catchers, this difference was particularly important. Those employed in the position worked, on average, 60.0 hours a week in both the South Atlantic and South Central regions throughout the 1890s. In the North Atlantic region, however, the workweek remained several hours longer. In 1890, the workweek stood at 65.6 hours, which slightly increased to 65.9 hours in 1893. The average week had decreased to 64.8 hours in 1895 and remained at the figure throughout the end of the decade. Workers in the North Central region worked even longer hours at the beginning of the decade, with an average of 72.0 hours in 1890. This figure remained stable until it dropped to 57.6 hours in 1897 and reached a low of 56.4 hours in 1899. The figure did increase in the first decade of the twentieth century to mostly over 60.0 hours a week, but it consistently remained well below 70.0 hours a week.[11]

Both the South Atlantic and South Central regions were relatively favorable to their workers, requiring sixty-hour workweeks, on average, throughout the 1890s. Although the figure did increase to 61.3 hours in 1906 in the South Atlantic region, this was largely insignificant compared to the sharp increase in the South Central region in 1904, when workers began several years of being employed 72.0 hours a week. Whereas the South Central region ended the period at that figure, the North Central region began the period at seventy-two hours in 1890. This remained consistent until there was a drop

[10] *Ibid.*, 247.
[11] *Ibid.*, 240.

to 57.6 hours in 1897. This did increase to 64.0 hours in 1900 and further increased to 70.3 hours in 1904. These figures were much higher than those in the North Atlantic region. Throughout the period, the average workweek fluctuated by less than two hours. In 1890, the workweek stood at 64.6 hours and reached a high of 65.1 hours in 1892. It decreased to 64.4 hours in 1896 and remained there throughout the rest of the decade, not increasing until 1902, which it did to 64.8 hours. There was a low of 62.2 hours in 1904, but the figure did not decrease further for several more years.[12]

Roughers, who also worked in the bar mills, had generally comparable workweeks. Their basic job duty was to pass the iron or steel "back and forth through the first stand of rolls." They had "heavy work" that required "considerable experience." Because of this, "a rather long period of training in other positions is necessary before a man is able to work at the roughing rolls."[13] Up until the end of the nineteenth century, the vast majority worked sixty-hour weeks, with a few limited exceptions. Their average workweek in Ohio in 1881 and Missouri in 1892 was 48.0 hours, compared with a 72.0 week in Illinois in 1889, for example.[14] By the 1890s, however, the workweek had become longer in some areas. Their workweek remained 60 hours on average in both the South Atlantic and South Central regions until the twentieth century. The week never did lengthen considerably in the next decade in the South Atlantic region, as it remained at 60.0 until 1906, when it rose slightly to 61.1 hours. The South Central region in the next decade experienced a much more dramatic shift. While remaining at 60.0 until 1902, there was an increase to 72.0 hours in 1903 and this figure remained steady throughout much of the decade. The week was slightly longer in the North Atlantic area in the 1890s,

[12] *Ibid.*, 243.
[13] United States Department of Labor, *Wages and Hours of Labor in the Iron and Steel Industry*, 343.
[14] *Ibid.*, 244.

averaging slightly above 60.0 hours a week throughout the decade. The fluctuation each year was slight, with a high of 64.1 hours in 1893 and a low of 63.6 hours in 1890. In the entire decade, the fluctuation was no more than half an hour. In the North Central region, workers were averaging 72.0 hours in the first half of the decade. There was a dramatic decrease to 56.0 hours in 1897, which decreased to 55.4 hours in 1898. By the beginning of the next decade, the hours began to rise again to a high of 63.7 hours in 1903, but the workweek never again reached the length of the previous decade.[15]

As discussed in chapter 2, those who toiled in the blast furnaces consistently experienced the longest workweeks and their situation has come to be viewed as stereotypical of the steel industry. For several decades, those working in the positions related to the furnaces often worked 84 hours a week. Furnace keepers were among them, although they had not always worked such long hours, as their workweeks increased considerably in the latter half of the nineteenth century. Keepers in Pennsylvania, for example, worked an average of 72 hours in 1856. This was a long week for the period and by any measure, but their average workweek in the same state increased to 82 hours in 1878 and reached 84 hours by the next year.[16]

The 84.0 hour workweek was not universal for furnace keepers in all states. In 1880, one year after Pennsylvania keepers registered a workweek of 84 hours, those in Ohio were working 78 hours. Figures for Ohio demonstrates greater variability than Pennsylvania, which averaged the same hours for the position for several decades. Keepers, in Ohio for instance, did reach the 84 hour workweek by 1885, but it had dropped to 74 hours in 1887, rising the next year to 84 hours and again dropping to 76

[15] *Ibid.*, 245.
[16] *Ibid.*, 247-248.

hours in 1890 and even 72 in 1892. Thereafter, it remained at 84 hours for some time. All other states listed had average workweeks for the position no less than 70 hours, with Indiana reaching such a figure in 1885.[17]

By the 1890s, the workweek for keepers in all areas had reached an average of 84 hours. This phenomenon continued until the second decade of the twentieth century. Not until 1911 was there any decrease in the average workweek for the position. In that year, the average week for workers in the Eastern region decreased to 81.6 hours and in the Great Lakes and Middle West region to 80.3. The week decreased little thereafter in the Eastern region as it was 82.5 hours in 1915. The Pittsburgh region also saw some shortening of the week in that decade with a decrease to 78.8 hours in the same year. The decrease was greater in the Great Lakes and Middle West region, to 76.3 hours in 1915. There was little relief for workers in the Southern region, with the workweek remaining 84.0 hours or slightly below throughout the decade. There were no major decreases in that region until the 1920s.[18]

Fillers in the blast furnaces experienced a similarly arduous workweek. Again, they initially had long hours in the latter decades of the nineteenth century, but those were comparatively shorter than later decades. They were already working over 80 hours a week in some states before the end of the 1870s.[19] As the 1880s progressed, the 84-hour workweek became more dominant, although it was not universal. Alabama, Missouri, Tennessee and Georgia both had average workweeks of 84 hours, while Ohio and Pennsylvania had average workweeks of 80 hours. The average workweek in West

[17] *Ibid.*, 248.
[18] *Ibid.*, 249.
[19] The average workweek for fillers in Ohio in 1877 was 80 hours and in Pennsylvania in 1878, it was 83 hours.

Virginia was 76 hours, in New York it was 74, in Maryland it was 72 and the shortest week listed was in Illinois, with an average of 70 hours.[20]

By the 1890s, the 84-hour workweek was firmly in place. This does not mean that every single filler consistently worked such a week, as there were exceptions for a host of reasons, whether labor problems or poor economic conditions. Top fillers, for instance, worked only 71.5 hours in 1903 and 72.0 hours in 1904 in the North Central region. Despite some exceptions, most fillers experienced the arduous workweek for much of the first two decades of the century. The first meaningful decrease for top fillers was that in the Great Lakes and Middle West region. By 1910, their workweek decreased to 74.7 hours and, despite a few years of increases,[21] the week subsequently dropped to 70.5 hours in both 1914 and 1915. It decreased even more dramatically by the 1920s. Although the Southern region had a modest decrease to 79.1 hours in 1911 and 80.8 in 1912, all other regions had 84-hour weeks through 1915.[22]

For bottom fillers, the workweek was equally long or longer. Both the Eastern and Pittsburgh region had 84-hour weeks through 1915. The Southern region did also, with two minor exceptions of 77.6 hours in 1912 and 78.2 in 1913. The only area in which workers saw any meaningful decrease was in the Great Lakes and Middle West region, and this was long in happening. No decrease is recorded in the average workweek until 1914, when it fell slightly to 80.9 hours, and again in 1915 to 79.4 hours.[23]

Skip operators in the blast furnaces had a slightly shorter week than the fillers, although this depended largely on the area. The Southern region had 84-hour weeks

[20] *Ibid.*, 250.
[21] The average week for the region increased from 74.7 hours in 1910 to 75.6 hours in 1911. There was an increase to 78.4 hours in 1912 and 1913, but the week decreased to 70.5 hours in 1914.
[22] *Ibid.*, 252.
[23] *Ibid.*, 252.

through 1915. The Eastern region was the first to have a decrease in the week, although it was minimal. The week dropped to 78.0 hours in 1911, although this figure stayed steady and even increased slightly to 81.6 hours in 1915. The Pittsburgh and Great Lakes and Middle West regions both had their first decrease by 1912. In this year, the workers in the Pittsburgh region were on the job 77.4 hours, although this figure returned to 84 hours the next year and was at 78.7 hours in 1915. The change in the Great Lakes and Middle West region was probably more promising to workers as the week dropped to 81.2 hours in 1912 and steadily decreased thereafter until 1915, when it stood at 76.8 hours.[24]

Basic steel is one part of the holdings of a large steel company, but mines also play a large part in supplying the materials for steel. By the 1880s, the Carnegie Steel Company had a number of these. Of course, the availability of iron ore was of great importance for a steel company, and the management of Carnegie Steel continually worried about the availability of ore in the mines that they controlled. Despite this necessity for ore, not even all of their ore mines were operating seven days a week, let alone any miners working seven days a week. The Scotia Mine operated on an average of six days per week in 1882, being closed on Sundays and major holidays such as Independence Day and Christmas. As a result, the months of July and December 1882 had only twenty-five days of operation each.[25]

Other companies tended to show similar trends. Owing to the central importance that work hours held for workers and trade unions, the minutes of trade unions show the importance of the issue of the length of the workweek and workday for workers. The American Federation of Labor viewed the issue of utmost importance. In a report in the

[24] *Ibid.*, 252.
[25] "Comparative Statement of cost per ton of ore produced at 'Scotia' ore mine," from Records of the Carnegie Steel Company, Box 70, Folder 5.

proceedings of the federation's convention in Boston in 1889, President Samuel Gompers addressed the issue extensively. He posited that "in the whole history of the labor movement there has not been any question upon which the thoughts of the civilized world have been so thoroughly centered as upon the Eight-Hour Movement," which, he claimed, was "inaugurated by the American Federation of Labor." He also recorded that, earlier that year, there were 240 "mass-meetings held in cities and towns" on February 22, 1889, 311 on July 4, 1889, and 420 on September 2, 1889, which hoped to raise public sympathy toward the movement for shorter hours.[26]

Iron and steel workers also voiced their concerns over the length of their work hours through their union. The minutes of the Amalgamated Association of Iron and Steel Workers show the importance of this concern throughout the 1880s and 1890s. The minutes speak of "the general move among trades unions to shorten the hours of work," and addressed it accordingly.[27]

The resolutions of the lodges indirectly help to clarify the work hours of several iron and steel companies as well as the goals of lodges. Typical resolutions called for a six-day workweek with an abbreviated Saturday. Lodge 41 of Findlay, Ohio, for instance, wanted "ten hours to constitute a day's work." The day shift was "to go on duty at 7:00 a.m. and work until 6:00 p.m., with one hour for dinner." The night shift was to have a longer workweek.[28] Lodge 116, known as the North Star Lodge, of Rankin, Pennsylvania, called for a similar workweek, but made sure to explicitly mention the shortened

[26] *Report of the Proceedings of the Ninth Annual Convention of the American Federation of Labor, held at Boston, Mass. on December 10, 11, 12, 13 and 14, 1889*, from *The Journal of the Annual Convention*.
[27] *Proceedings of the Twenty-Third Annual Convention Held in Cincinnati, Ohio, May 17-27, 1898* from *The Journal of the Annual Convention*, Vol. 1897-99, p. 5418.
[28] *Programme of Business, of the Sixteenth Annual Session of the A.A. of I.S.W. to Convene at Pittsburgh, PA, Tuesday, June 2, 1891*, from *The Journal of the Annual Convention*, Vol. 11, 82.

Saturday, insisting that work should "cease at 5:00 p.m. Saturday."[29]

Most lodges wanted similar hours, including a shortened Saturday and a day off on Sunday. Some lodges pushed for overtime pay for any workers who had to work at any point between Saturday evening and Monday morning. The Washington Lodge of Jones and Laughlin in Pittsburgh, for example, insisted that "that engineers and millwrights receive double time for extra work performed from 5 o'clock Saturday night until 7 o'clock Monday morning."[30] The Morning Star Lodge of Beaver Falls, Pennsylvania, insisted on "one hour each day for dinner" for the day turn, and "one-half hour for supper" on night turn. This lodge also insisted "that time and a half time shall be paid for all over-time."[31]

Some were not satisfied with a sixty-hour workweek, and pushed for shorter hours. The union passed a resolution in 1898 that "eight (8) hours shall be a day's work on Tin Plate mills, and mills not to operate Saturday or Sunday nights."[32] The convention that year also stated that "the fact is now true that about three-fourths of our entire organization does work on this system." Members of the convention also sought to ease the fears of any workers toward the eight-hour day. Many were concerned that a decrease in work hours each day would limit available work and ultimately limit their pay. However, the convention noted that "those mills who work the eight hours have more days' work in the year than on the longer hour system. This would serve to prove the mistake of our members who have in the past contended that the eight hour system would give less work to them."

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[29] *Ibid.*, 83-84.
[30] *Ibid.*, 79.
[31] *Ibid.*, 85.
[32] *Programme of Business of the Twenty-Third Annual Session*, from *The Journal of the Annual Convention*, Financial Statements, 1897-99, 49.

The 1890s saw a general shortening of work hours in iron industry as it began to be eclipsed by steel industry, which, in turn, had its workers on the job longer. The statistics of the Bureau of Labor tend to support this shift, but there are wide variations in the length of the workweek based on occupation. Most workers who tended to the blast furnaces, for example, did work the eighty-four hour week. These occupations included virtually all of the jobs that dealt with the blast furnaces, including such semi-skilled positions as cinder snappers and the hot-blast men.[33] Between the years of 1890 and 1900, there was no fluctuation in the number of work hours for these workers.[34]

Not all workers had such a grueling work schedule. Those working in bar iron mills had a significantly shorter workweek, with even shorter ones as the decade progressed. On average, catchers were working 65.38 hours in 1890. This decreased to 63.61 hours in 1895 and shortened even more by 1900 to 61.72 hours. This was a significant decrease of nearly two hours every five years. Their fellow employees in the bar iron mills worked similar hours. Heaters began the decade working 66.69 hours per week, slightly higher than catchers. This figure also decreased, down to 65.24 hours in 1895 and even to 62.21 hours by 1900. In short, by the turn of the twentieth century, many workers in the bar iron mills were working about sixty-hour weeks, or six, ten-hour days, which amounts to a rather typical figure at the time.[35]

A few positions did see an increase in work hours in the last decade of the nineteenth century. This included melters for Bessemer converting, an occupation that

[33] Charles R. Walker, *Steel: The Diary of a Furnace Worker* (Boston: Atlantic Monthly, 1922), v.
[34] United States Department of Commerce and Labor, *Bulletin of the Bureau of Labor, No. 53, July, 1904*. Washington, DC: Government Printing Office, 1904, 813.
[35] *Ibid.*, 821.

was a hot one, requiring workers to be "on the floor" next to furnaces.[36] They worked 54.86 hours per week in 1890, and this figure increased to 58.50 in 1895. This stayed relatively stagnant and even decreased slightly until it increased again to 61.62 in 1900.[37] Drawers in the blooming mills also saw an increase in the length of their workweek, increasing from 48.00 hours per week in 1890 to 72.00 hours in 1895, and remaining stagnant until 1900.[38]

The length of shifts largely depended upon the kind of job a worker had in a steel or iron mill. The blast furnaces have been the stereotypical example, where most workers worked eighty-four hour weeks. Other workers did not work as long. In bar iron, for example, workers experience weeks that were about sixty-five hours long in 1890 and had decreased to around sixty hours by 1900, which were more in-line with the decreasing hours in iron.[39] But even in steel, not all workers were on the job as long as some in the blast furnace, as evidenced by the records of the Duquesne Works.

Broad averages of hours across various plants supply information on the industry as a whole but studying an individual plant and its departments demonstrates the the differences between departments within a single plant. The Duquesne Works in Duquesne, Pennsylvania was a technologically advanced plant that grew rapidly at the turn of the twentieth century and is excellent for such a case study. The records of the Duquesne Works lists the length of the workday for approximately 1,623 workers in 1900 and 2,573 men in 1904.[40] The records appear to be relatively comprehensive, in line with one estimate of 900 workers at Duquesne in 1898 and substantial growth in the workforce

[36] Walker, *Steel*, 51.
[37] U.S. Dept. of Labor, *Bulletin*, 812.
[38] *Ibid.*, 815.
[39] *Ibid.,* 809.
[40] *Time and Wages Indices*, April 1, 1899. Records of United States Steel, Duquesne Works, 1895-1984, Senator John Heinz History Center Library and Archives.

during succeeding years.[41]

Paralleling the Department of Labor statistics discussed above, the records from the Duquesne Works demonstrate that the workweek for workers was largely contingent on the department or position in which they worked. Workers in the Converting and the Blooming and Rolling Mill Departments, for example, universally worked a twelve-hour day. The Blast Furnace Department was similar, yet somewhat more diverse. Of the 93 men working in the department, 76 were working twelve-hour days, while 14 were working ten-hour days. Three others were employed for eleven-hour days. This amounted to a little over 81 percent working twelve-hour days, about 15 percent working ten-hour days and 3 percent working eleven-hour days.[42]

The twelve-hour day was not universal in the Blast Furnace Department, but depended on the skill level required for each occupation, as there were some semi-skilled and even skilled workers, many of whom were foremen, who worked with the large majority of unskilled workers. The majority worked the eighty-four-hour workweek with little fluctuation. This included a whole host of jobs, such as cinder snappers, blowers and keepers, but the majority of skilled workers worked ten-hour days, presumably requiring a sixty-hour week. Among these were the superintendent, assistant superintendent, the pyrometer clerk, the pipe fitters foreman, and others.[43]

The stockyard department included numerous workers, most whom were unskilled. Records from 1899 list eleven different occupations for the fifty-nine workers in the stockyard. All worked twelve-hour days. Through 1904 the records indicate that,

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[41] Karen Cowles, "The Industrialization of Duquesne and the Circulation of Elites," *The Western Pennsylvania Historical Magazine*, Vol. 62, No. 1 (January, 1979): 4.
[42] The Records of the Duquesne Works.
[43] *Ibid.*

although some positions changed, there was no variation in the length of the workday. This was true for a whole host of occupations, including scrapmen, bucket gaugers, and coke braziers.[44]

There were other departments that almost universally required the twelve-hour shift. The Blooming and Rolling Department required a twelve-hour shift with one exception, which was the assistant foreman who worked a ten-hour shift. Regardless of position, all others worked twelve-hour days. This included laborers of the rolling department, greasers, roughers, water men and crane boys, but also included even the superintendent of the blooming and rolling mills as well as the night superintendent. Another department in which the twelve-hour shift was predominant was the Finishing Department. All listed occupations worked that long, including a message boy, laborers and even the superintendent. The Sixteen-Inch Mill also universally required the twelve-hour shift, with occupations ranging from engineers, flying shearmen, greasers, rollers, and "rollers help", to levermen and shear scrap boys.[45]

The Bessemer Converting Department was more diverse than the other departments in regard to the number of hours worked, although a majority also worked the twelve-hour day. There were forty-six individual occupations listed in the department, thirty-five of which worked the twelve-hour day. Many of these were unskilled laborers, such as cinder dump men and a "floor clean-up", but there were also skilled and semi-skilled workers, such as a car repairman. The foreman and superintendent are listed as working twelve-hour days. But there were several workers there who worked shorter days. Two occupations had eleven-hour days, including the day labor foreman and the

[44] *Ibid.*
[45] *Ibid.*

"ball man skull cracker." The one occupation in the department that worked a ten-hour day was the clerk to the superintendent, a white-collar position. There were eight positions, however, that were listed as having an eight-hour day.[46]

Other departments saw some variety in the length of shifts. The Transportation and Labor Department was almost evenly divided between ten and twelve-hour shifts. There were four positions listed that worked ten-hour days. These positions accounted for a total of twenty-four men, many of whom were metal breakers and coal trestle and tool men. There were seven positions that were listed as working twelve-hour days, accounting for twenty-eight workers, only four more than those who worked ten-hour days. These positions included conductors, brakemen, cinder wheelers, scale wheelers, ash wheelers, and even the superintendent and yard master assistant. Most men in this department, however, were laborers. There were 492 men under that occupation, by far the majority of the department. They were listed as working ten to twelve-hour days, which probably meant that the length of their days varied, most probably according to the amount of work available at the time. [47]

There were instances in which the ten-hour day was more common than the twelve-hour shift. This was most notable in the Mechanical Department, where a sizable majority worked ten hours. At one point in 1899, there were 134 occupations listed with exactly 500 workers. There were 367 listed under 81 different occupations working the ten-hour shift, while only 129 listed under fifty-three working the twelve-hour shift. The other four workers included three of the same occupation working an eight-hour day and the final one working a thirteen-hour day. The ten-hour shift, then, was more prevalent

[46] *Ibid.*
[47] *Ibid.*

than the twelve-hour shift in the Mechanical Department by a margin of almost three-to-one.[48]

With 500 workers, the Mechanical Department was relatively large and had a number of different divisions. Among the machinists in the foreman shop, all fifty-three were working ten-hour days. All 35 in the boiler houses were working ten-hour days as well. This included the foremen, boilermakers and even apprentices. In addition to these positions, carpenters, roll turner foremen, bricklayer foremen, pipe fitters, tinners and a host of others also worked ten hours. Worktime for some occupations did vary among each position. For example, there were twenty-four blacksmith foremen, of which sixteen worked ten hours and eight worked twelve. Some did have twelve-hour shifts, and these included occupations such as engineers, firemen, greasers, hostlers, oiler condensers and levermen. There were some who worked eight-hour days, and these were the engineers for the blooming engine.[49]

Speaking in terms of specific figures in regard to the Mechanical Department, of the 517 men employed in it, 367 were working ten-hour days while only 146 had twelve-hour shifts. Incidentally, three were working eight-hour and one was working thirteen-hour shifts. This translates to over 70 percent of the department working the ten-hour day and only a little over 28 percent on the twelve-hour day. All others amounted to less than one percent of the department. Not surprisingly, many of these positions were more skilled than their counterparts in the other departments. These included engineers, repairmen, pipe fitters and carpenters.[50]

It is important to remember that worktime for the plant was not stagnant but

[48] *Ibid.*
[49] *Ibid.*
[50] *Ibid.*

fluctuated frequently. Understandably, this fact makes it even more difficult to gauge the length of the workday. The records for the Electrical Department in 1900 were physically altered at some point during the year due to a few positions being eliminated, including a clerk position that was "done away with," as well as the hiring of a few others. Thus, during the course of the year, the number of positions increased from 20 to 21 and the number of workers increased from 31 to 36. Initially, 18 workers had a ten-hour shift while 13 had a twelve-hour shift, a proportion of a little over 58 percent to slightly under 42 percent, respectively. After the changes, the ten-hour men increased to 25 while the twelve-hour ones to 11. As a result, after the change, almost 70 percent of the department were working ten-hour days while slightly over 30 percent were working twelve-hour ones.[51]

What may make the gauging of worktime even more difficult is the fact that men in some positions worked different hours each day. Although a number of positions were listed with varying hours, the majority of workers who had such work hours tended to be those listed as laborers. Presumably, the hours for the laborers fluctuated significantly weekly and even daily depending upon the amount of work available. Although an often overlooked position, laborers at times provided the bulk of the workers in some departments. In the Transportation and General Labor Department, there were 491 workers listed as laborers in the 1900 records, over a quarter of all of the workers listed. And much to the consternation of anyone attempting to gauge the time they spent on the job, their workday is listed as varying from ten to twelve hours each day.[52]

Computing the figures for the entire plant, of the total 1,623 men working at

[51] *Ibid.*
[52] *Ibid.*

Duquesne in 1900, there were slightly more workers on a twelve-hour day than a ten-hour day, with 541 compared to 480. Those who were working eleven and eight-hour days were in the minority, with seven and 68 workers, respectively. Of course, the 491 laborers who were listed as working ten to twelve-hour days was a substantial portion, while only 18 men each were listed as working ten to eleven hours and eleven to twelve hours. The largest number of workers, therefore, worked twelve-hour days, although this was a marginal plurality at only 33 percent of the workers, or one-third of the workforce. The next largest figure was the 491 laborers who worked ten to twelve-hour days, which amounted to about 30 percent of the workforce. Closely behind them in numbers were those working ten-hour days, at about 30 percent of the total. Those working eight-hour days were a small minority at about 4 percent of workers. All others, including the eleven-hour men and those working ten to eleven hours and eleven to twelve hours amounted to less than the eight-hour workers. The vast majority of the workforce, therefore, was working at least ten-hour days, although a good number worked no more than that. Depending on the work needed, underlying economic conditions, or other factors, those working a variable number of hours could swing the majority of employees between ten or twelve-hour days.[53]

By 1904, the size of the workforce at Duquesne significantly increased. Duquesne in 1900 had been a part of the independent Carnegie Steel Company. Although still under the same company, it had become a part of the first billion-dollar corporation in 1901, United States Steel. The beginning of the twentieth century was a period of growth for the plant. The records of 1904 list almost a thousand more employees than those of 1900,

[53] *Ibid.*

with at least 2,573 names.[54]

The work hours for many of the positions did not drastically change in those few years, but what did was the number of workers in each of the positions. Some of the departments that had the longest workweeks also grew the most. The Blast Furnace Department, having only 93 men listed in the 1900 records, had a substantial 604 workers in 1904. The Converting Department also increased, from 189 men to 301 in 1904. Of particular note was the rapid growth of the Open Hearth Department, which numbered 239 workers in 1904, showing the adoption of that new and soon to become dominant technology.[55]

These departments still had large numbers of workers on the twelve-hour day. The Blast Furnace Department, characterized by a lengthy workday and workweek, rapidly grew and still had a substantial portion of its workforce on the job twelve hours each day, but it had actually become more diverse in terms of worktime. It had 403 men who worked twelve-hour days, but it also had 59 men on eleven-hour days and 90 working ten-hour shifts. There were also 50 men listed as laborers who worked ten to twelve hours and two others who worked eleven to twelve hours daily. In terms of proportions, only 67 percent of blast furnace workers were in their respective department for twelve hours a day, a decrease from 82 percent in 1900. Ten percent of workers were on the job for eleven hours a day, while nearly 15 percent worked for ten hours each day. Less than one percent of workers worked eleven to twelve hours a day, while the large variable were the workers who were listed as working ten to twelve hours a day, making

[54] *Ibid.*
[55] *Ibid.*

up eight percent of the blast furnace workforce.[56]

The Converting Department also grew rapidly in the first four years of the twentieth century, from 189 in 1900 to at least 301 in 1904.[57] Of the 301, 229 were working twelve-hour days. Surprisingly, the next largest group of workers were those who worked eight-hour days, a total of 42 men. All others outside of these two groups count as less than ten percent of the workforce. There were 22 who were listed as working eleven to twelve-hour days, five who worked ten-hour days and at least three, but up to four, men who worked eleven-hour days. In all, about three-quarters of the department, or 76 percent, worked the twelve-hour day. Fourteen percent of the department was at work for eight hours and 7 percent for eleven to twelve hours. Over the four years, the number of eight-hour men increased but the greatest increase came with the twelve-hour men. Thus, a large department that consisted of a majority of men who worked a twelve-hour day grew substantially in size over the period, contributing to a larger percentage of the workforce engaged in the long workweek.[58]

Not all departments that grew consisted of a majority of twelve-hour men but many of them tended to be smaller in size than the Blast Furnace or the Converting departments. The Electrical Department, for example, consisted of 53 men in 1904, an increase from 36 men in 1900. Thirty-nine of the men worked ten-hour days, while the remainder, 14, worked twelve-hour days. Thus, almost three-quarters of the department, 74 percent, were ten-hour men, while 26 percent were twelve-hour men. The proportion

[56] *Ibid.*
[57] The records for 1904 list a variable number of workers in the department. Although the records are not clear on the issue, the additional workers were probably for busier times of the year. Whatever the reason, the estimate includes the minimum number of workers. The positions with the most workers that had a variable number were the twelve-hour men and the eight-hour men. The variable between the two is about proportionally the same, so that counting the additional workers (which is only slightly more than ten percent of the department) would keep about the same proportion.
[58] *Ibid.*

of the Electrical Department on ten-hour shifts increased during the time period, as there were from 58 percent at one point, to 69 percent at another, in 1900 that had ten-hour turns, as discussed previously. The General Labor Department also had the vast majority of its workers on a ten-hour shift. Of the 96 men working in the department, 90 were on a ten-hour rotation while only six had a twelve-hour shift. Well over 90 percent, about 93 percent, were working ten hours a day.[59]

There were numerous other departments, some of them small, that had an assortment of work schedules. Virtually all of the Transportation Department worked on a twelve-hour shift. Seventy to 80 men were listed as working twelve hours while the two hostlers worked twelve to thirteen hours each day. The Police Department, totaling 25 workers, universally had twelve hour shifts. The Inspection Department had the same shifts but a total of 12 men. The Roll Shop, with 21 total workers, had an even divide between those who worked ten hours a day and those who were listed as working ten to twelve hours. There were only three regular twelve-hour men, compared to nine working ten hours and nine more working ten to twelve.[60]

Among all workers at the Duquesne Works in 1904, a larger number were working a twelve-hour day than in 1900. Out of the 2,573 men surveyed, 1722 were on a twelve-hour shift and 571 were on a ten-hour shift. Sixty-seven percent of the workforce had a steady twelve-hour shift, an increase from exactly one-third four years earlier. At first glance this may seem like a significant increase, but the 1900 figures include 30 percent of the workforce listed as working ten to twelve-hour days, an ambiguous figure. The 1904 records only list five percent of workers with such a day. Although no one can

[59] *Ibid.*
[60] *Ibid.*

say with certainty, if that large percentage of workers actually had work days closer to the higher figure as opposed to the lower, the increase would have been somewhat minimal. The less ambiguous 1904 data allows a clearer understanding of the actual length of the work day at the plant. In specific figures, then, about two-thirds of the workforce had a twelve-hour shift, while slightly less than one-quarter, 22 percent had a ten-hour shift. As stated earlier, 130 men, or 5 percent, were listed as working ten to twelve-hours each day. Eighty-one workers, or three percent of the workforce, had an eleven-hour shift.[61] All others amounted to a small percentage. Forty-five men, or less than two percent, had an eight-hour day while 24, or slightly less than one percent, worked eleven to twelve hours each day.[62]

The time records of the Duquesne Works indicate relatively steady figures with little fluctuation from 1898 until 1904. Many workers undoubtedly continued on the twelve-hour workday into the twentieth century, but this was not universal. The twentieth century actually saw an increased number of workers engaged in shorter ten-hour and eventually more eight-hour shifts. Views among the public would reflect this, as many were certainly aware that not all steelworkers were engaged in twelve-hour shifts. This is evidenced by an event in 1910. Andy Inarchancheck, a fireman at the Schoen Steel Wheel Works of the Carnegie Steel Company, then a subsidiary of United States Steel, was injured on the job on March 22. This eventually resulted in his death at West Penn Hospital on April 2. There was a coroner's inquest after the incident to determine the cause. This was led by H.J. Baer, and the discussion he had with William O'Brien, the chief engineer of the works, makes an interesting point. Numerous questions abounded

[61] *Ibid.*
[62] *Ibid.*

about the deceased as well as work conditions. When the issue of the length of the work shift arose, Baer did not merely ask how long the shift was or whether or not he was working twelve-hour shifts but merely asked, "10-hour day?," to which O'Brien replied "No sir, 11-day turn; 13 hours night turn." Inarchancheck was still averaging the twelve-hour day, but Baer initially presumed that he was working shorter shifts.[63]

The twelve-hour day continued through the second decade of the twentieth century. Several strikes, including in McKees Rocks in 1909 and Bethlehem Steel in 1910, brought public attention toward the conditions that workers faced in the steel industry. The outcry was so great that the United States Congress moved to investigate the issue. Stories in the press spoke of "the twelve-hour day, seven-day week, speed-up, numerous accidents, and a wage too low to support the family of an unskilled laborer."[64] One report found that in May 1910, "50,000, or 29 per cent, of the 173,000 employees of blast furnaces and steel works and rolling mills covered by this report customarily worked 7 days per week, and 20 per cent of them worked 84 hours or more per week." The report noted "that the 7-day working week was not confined to the blast-furnace department where there is a metallurgical necessity for continuous operation, and in which 88 per cent of the employees worked 7 days a week; but it was also found . . . to a considerable extent, in other departments where no such metallurgical necessity can be claimed." Thus while the twelve-hour day may have been instituted to satisfy continuous process production, it had spread to other aspects of steelmaking. According to the report, "in some establishments the Bessemer converters, the open-hearth furnaces, and blooming, rail, and structural mills were found operating 7 days a week for commercial

[63] Inquisition on the case of Andy Inarchancheck, alias Andre Martinceire, from Records of the Carnegie Steel Company.
[64] Brody, *Steelworkers in America*, 160-161.

reasons only."[65]

The steel industry defended its practice of keeping workers on twelve-hour shifts. One common argument was that, although many were on the job for extended hours, the number of hours that they actually did work was much less. Many of the positions in the plants necessitated idle time throughout the day. The president of Carnegie Steel, A.C. Dinkey, made this point in a statement prepared for a hearing before a House of Representatives committee in 1912. According to the report, workers in the open-hearth department did actual work for than 41 percent of each shift. The highest average among departments was the eighteen-inch bar mill with an average of slightly more than 72 percent of the time. The average for the blast-furnace department was about 48 percent, the forty-inch bloom mill at about 46 percent, the fourteen-inch bar mill about 72 percent and the two twenty-two inch mills at about 54 percent and 48 percent. The individual occupation listed as requiring the most actual work during a shift was rougher in the fourteen-inch bar mill at a little above 86 percent of the shift. Likewise, the occupation requiring the least amount of work in a shift was guide setter at the second twenty-two inch mill, which required actual work for only 23 percent of a shift.[66]

Percival Roberts, Jr., a member of the board of directors of the United States Steel Corporation, vigorously defended the practice of the twelve-hour day before the committee in 1912. He claimed that when he "first entered the iron business [when] steel was practically unknown, except for the purpose of railroad rails and tools . . . the blast furnace was operated 7 days a week, 12 hours a turn." In addition, the common work "in

[65] United States Congress, Senate, *Report on Conditions of Employment in the Iron and Steel Industry in the United States*, 62d Cong., 1st sess., 1911, Doc. 110, XIV.
[66] United States Congress, House, Committee on Investigation of United States Steel Corporation, *Hearings Nos. 50-53*, 62d Cong., 1912, Vol. 4, 3313.

rolling mills was then the puddling furnace. Those men operated on the night shift, 5 nights a week, 21 hours; and on the day turn they operated 6 days a week, 12 hours. . . . They were all 12-hour turns."[67] He insisted that the twelve-hour shift "was a matter of mutual convenience . . . a desire on the part of the men, probably, to obtain a greater rate of wages by so doing, and then, as I say, a convenience on the part of the operators in the direct operations of their mills, due to the inconvenience of the 8-hour turn."[68] He also noted that "my experience is that I have seen no ill effects from that 12-hour labor." Summarizing, he questioned what the actual length of a shift ought to have been by asking "who shall say that 8 hours is the proper limit?"[69]

Many rejected Roberts' view. Concerns over the detrimental impact of long work hours on workers' safety and family life persisted. Augustus Stanley, chairman of the committee, summarized them in his response to Roberts, noting that "a man working 12 hours a day, out of which time must come his time for eating his breakfast and supper and all that, would have little or no time, except for sleep, in the bosom of his family. He would have but little time for the care and rearing of his children."[70] The debate and outcry summarized in these words, continued throughout the decade.

[67] The document records Roberts as claiming that the night shift worked "21 hours." Taking into consideration data and the context of the statement, this probably was simply a typo.
[68] *Ibid.*, 3260-62.
[69] *Ibid.*, 3264.
[70] *Ibid.*, 3262.

Chapter 4

From Strike to Depression

The Experience of the First World War and the impact of labor shortages during the war intensified steelworkers' desires for shorter hours. Although there was much public resentment toward labor disputes during the war and many were willing to do what they could to contribute to the war effort, such sentiments changed after the armistice. David Brody makes note that "surely no worse off than before the war, the men in the mills now saw their situation in a new light. They accepted their hardships during the national emergency, but they had no expectation of a resumption of the old order afterward."[1] Workers hoped to achieve union recognition and a reduction of work hours and attempted to do so by striking in 1919. Many workers felt the issue of worktime to be even more important than pay. They were willing to sacrifice pay increases if they "could have shorter hours and still bring home the same pay." David Brody documents the case of Pueblo, Colorado steelworkers who, in 1919, "demanded the eight-hour day despite the cost; with a 10 per cent increase, the unskilled men earned two dollars less for eight hours than they had for twelve hours." Despite this reduction in earnings, "investigators found unanimous enthusiasm for the change."[2]

On the eve of the strike of 1919, conditions had improved somewhat. Many workers in various positions had experienced a shorter workweek in the second half of the nineteenth century. Many continued to work the twelve-hour day, in the years before the strike, but skilled workers lucky enough to be in a union tended to work less. A majority of workers from the Palace Lodge, No. 30, of the Amalgamated and one that had

[1] David Brody, *Steelworkers in America: The Non-Union Era* (Cambridge: Harvard University Press, 1960), 198.
[2] *Ibid.*, 235-36.

largely tin workers who were skilled, worked a ten-hour day. The records indicate that these workers were from the Tin House, Finishing and Hot Mill departments. Of the 409 total men, 228, or 56 percent, worked ten-hour days, 162, or 40 percent worked twelve-hour days and 19 (5 percent) worked eleven-hour ones. Some of the positions with the most workers included the cold roll openers, 50 total, and the shipping labor, which included 40 workers, all of whom worked ten-hour days. Sheet and Tin Mill polishers, 14 total, and 17 sheet and Tin Mill stockers' ashmen worked twelve-hour shifts, to name a few.[3]

Other union men worked even shorter shifts and, to some, it was a relatively new phenomenon. Those from the Granite City Lodge, No. 16, which consisted of men in the Open Hearth Department in Granite City, Illinois, universally worked eight-hour shifts in 1918. These included 175 workers with 24 different occupations. This was the result of a reduction in the length of the shifts for some. The roundhouse men and the pump men, a total of five workers, originally worked twelve-hour shifts but began the eight-hour work day on December 14, 1918.[4]

Some workers gained shorter hours through arbitration, which occurred at times during the First World War due to the importance of keeping plants open for supply purposes. One such dispute occurred in 1918 with the workers of the Reading Iron Company of Reading, Pennsylvania. The National War Labor Board declared in September that "the basic eight hour day shall apply to all workers," beginning on the first day of November of that year and that "hours worked in excess thereof shall be paid for at the rate of time and one-half, and at the rate of double time on Sundays and

[3] Journal of the Annual Convention of the National Lodge, A.A. of I.S. and T.W., Amalgamated Association of Iron, Steel, and Tin Workers of North America, Duquesne University, 13743.
[4] *Ibid.*, 13740-13741.

National holidays." There were some exceptions, which included the provision "that the double time for Sunday work will not apply to blast furnaces nor in continuous operations where the employees have one day off in seven." With wage increases awarded as well, the decision favored the workers in many ways. In the end, these workers gained something many other steel workers never had during the period and something many have dismissed: the eight-hour day a year before the strike of 1919.[5]

Outcry over conditions did not simply begin in September, however. Even in the beginning of 1918 before the war drew to a close, "the labor movement was openly demanding public protection for union rights." At the Bethlehem Steel Works, a machinists' strike began in April due to complaints of "substandard wage and overtime rates . . . and company discrimination against union men." The strike did not come to an end until a month later when the National War Labor Board decided to bring the case to arbitration. After several months the board came to a decision, which the company implemented, to award the workers with pay for "time-and-a-half for work over eight hours and double time for Sundays and holidays."[6]

A number of contracts between the union and companies gave significant time-related concessions to workers. In a non-basic steel contract between the Palace Lodge, No. 30, and the National Enameling and Stamping Company, of Baltimore, Maryland, which was in effect from December 14, 1918 to June 30, 1919, the company conceded that "time and one-half shall be paid for all time worked in excess of eight hours and also for Sundays and the following holidays, viz: July Fourth, Labor Day and Christmas Day." Another agreement between the same company and the Industrial Lodge, No. 26,

[5] *Ibid.*, 13318-13319.
[6] Brody, *Labor in Crisis*, 52-54.

effective January 1, 1919 to June 30 of the same year, specified that "it is agreed that two eight (8) hour shifts shall constitute a day's work on the cold rolls; from 7:30 A.M. to 3:30 PM, and from 3:30 P.M. to 11:30 P.M." One exception was "when it is found absolutely necessary the men agree to work nine (9) hours."[7]

A range of grievances were at the heart of the nationwide steel strike of 1919. Workers desired the right of collective bargaining through unions of their choosing and the elimination of the twelve-hour day and a reduction to eight hours. Other demands included a day off of work each week, the "abolition of twenty-four hour shift" and "double rates for overtime over forty-eight hours, holidays, and Sundays."[8] Although James Rose has noted that "U.S. Steel officially abolished the seven-day week in 1910" in some departments, it became more widespread later in the decade due to "war-time labor shortage."[9] In fact, there was a significant limitation in the numbers of men working seven-day weeks in the early 1910s, but one estimate concluded that "in March 1912, 18,960 blast furnace men-57.5 per cent- still worked every day."[10]

Despite some success in the reduction of the seven-day week, the twelve-hour day continued for many and the war added to the time workers spent on the job. The long days did not go away after the war and the low pay continued, angering many. It has been posited that the anger of workers reached a breaking point shortly after the end of World War I, not before it, because "the war both sharpened these grievances and changed the worldviews of immigrant steelworkers." The American Federation of Labor pushed for a strike in the steel industry, calling out a half a million steelworkers nationwide in

[7] *Ibid.*, 13757, 13759.
[8] David Brody, *Labor in Crisis: The Steel Strike of 1919* (Westport, CT; Greenwood Press, 1965), 178 and *Steelworkers in America*, 238.
[9] James D. Rose, *Duquesne and the Rise of Steel Unionism* (Chicago: University of Illinois Press, 2001), 29.
[10] Brody, *Steelworkers in America*, 171.

September 1919.[11]

Confrontation continued throughout the country in 1919. The strike officially began on Monday, September 22, with many steelworkers in Bethlehem, Johnstown, South Chicago, Cleveland and Wheeling leaving their jobs. The strike began slowly in Pittsburgh, with the Duquesne Works of Carnegie Steel and Jones and Laughlin plants initially experiencing little or no strike activity.[12] After several weeks, the strike continued to grow into a massive movement. One estimate is that 350,000 steelworkers throughout the country participated in the strike at one point or another, with some 50,000 in the Chicago area alone. Members of various ethnicities joined the walkout despite their differences.[13] In the Pittsburgh region, most plants experienced decreased production as numerous workers walked off the job in McKeesport, Braddock and Homestead. Duquesne was the exception, however, as less than ten percent left the mill by the second week of the strike. Rose credits this to management control of the town as well as the extensive implementation of company welfare initiatives like housing, recreation and incentive programs, such as stock option plans.[14]

The strike continued strong for about six weeks in September and October of 1919.[15] Management and workers battled for public support. The workers received considerable sympathy initially, as neither the press nor the public could ignore the steelworkers' grievances. The U.S. Senate moved to investigate the strike as soon as it began, and testimony included stories of long hours and poor conditions on the job. The *New York Times* reported in October 1919 accounts by many strikers of "oppression and

[11] Rose, *Duquesne and the Rise of Steel Unionism*, 30.
[12] Brody, *Labor in Crisis*, 112-13.
[13] Lizabeth Cohen, *Making a New Deal: Industrial Workers in Chicago, 1919-1939* (New York: Cambridge University Press, 1990), 39.
[14] Rose, *Duquesne and the Rise of Steel Unionism*, 9-10.
[15] Brody, *Steelworkers in America*, 262.

brutality by the steel companies." However, workers who did not strike claimed that "they were well paid and well treated; that the men generally wished to work long hours because of the extra pay, and that the twelve-hour day was not as bad as it sounds, because the twelve hours included from two or three to six hours of rest. It also was testified that only a small proportion of the employes worked twelve hours, the majority putting in a ten-hour day."[16] The strike gradually collapsed in the face of declining support from a public increasingly scared of radicalism amidst a burgeoning "Red Scare" and strikers intimidated by implacable corporate resistance to labor organization.[17]

Once workers returned to the mills in November 1919, they resumed the same shifts that they had left. By the third week of November, some of the nation's largest plants, such as South Chicago, Gary and Johnstown, had three-quarters or more of their workforce back on the job.[18] Many may have felt that the strike had been in vain, but reform eventually followed. The U.S. Department of Labor found that "employees necessarily worked longer hours during the war period, but in 1922 full-time hours per week reached the lowest point in blast-furnace history, only 19 per cent being shown as working 84 hours with 11 per cent working over 72 and under 84 hours."[19] Another study found that those working 84-hour workweeks in the blast furnaces stood at 29 percent in 1920 and this figure decreased to 17 percent in 1922, a similar but even lower figure than the estimate of 19 percent. Weeks were still long in the department. Those working more than 72 hours but less than 84 hours a week composed 17 percent of the department in 1920 and this figure decreased to 13 percent in 1922. Those working 72-hour weeks

[16] *New York Times,* "Strikers Multiply Injustice Charges," October 13, 1919, 22.
[17] Brody, *Steelworkers in America*, 242.
[18] Brody, *Steelworkers in America*, 262.
[19] U.S. Department of Labor, Bureau of Labor Statistics, *Union Scale of Wages and Hours of Labor to May 15, 1923* (Washington: Government Printing Office, 1924), 11.

actually increased in the period, from 16 to 39 percent in the same years. Probably many of the workers with such a week were those who had the longer shifts, but it could not have been all of them as the increase was too great. Some must have experienced a longer workweek within those few years. Some of them probably came from those who had earlier worked weeks greater than 48 hours but less than 60 because there was a substantial decrease in the number of men working such a week, from 18 percent in 1920 to 7 percent in 1922.[20]

Those working with the Bessemer converters and the open-hearth furnaces also had some of the longest weeks in the industry, although those working the full 84-hour week were a similarly small minority in the period. Those working such a week in the Bessemer converters decreased from 21 to 9 percent between 1920 and 1922. In the open-hearth furnaces, there was actually an increase, although the figures continued to be minimal, from 6 to 16 percent between the same years. Similarly, those who worked more than 72 hours but less than 84 were decreasing. In the same time frame, there was a decrease from 17 to 5 percent in the Bessemer converters and from 38 to 20 percent in the open-hearth furnaces. The work week that was on the rise at the time was the 72-hour week. In the Bessemer converters, those working such a week more than doubled, with an increase from 25 percent in 1920 to 53 percent in 1922. In the open-hearth furnaces, the figure doubled, from 14 percent in 1920 to 28 percent two years later.[21]

Although the strike of 1919 did not eliminate the twelve-hour day, it fostered a strong public sentiment that workers were entitled to less time on the job and more time to themselves. An example of how this sentiment grew can be found in the work of the

[20] *Ibid.*, 9.
[21] *Ibid.*, 9-10.

Interchurch World Movement, which examined the issues of the strike extensively.[22]

The *Report on the Steel Strike of 1919*, published shortly after the strike, examines many issues but focuses largely on worktime. The goal of maintaining the spirit of the strike is expressed in the opening words of the report: "The steel strike of September 22, 1919, to January 7, 1920, in one sense, is not over. The main issues were not settled. The causes remain." The organization explained that it compiled the report to show the public what workers faced because "the little-known working conditions, which caused the strike, persist in the steel industry." The organization hoped that if conditions were better known, public sentiment would drive the unjust practices, including long work hours, from steel.[23]

Using some of the findings from a United States Senate investigation of the strike, the report stated that "approximately half of the employees in iron and steel manufacturing plants are subjected to the schedule known as the twelve-hour day (that is a working day from 11 to 14 hours long" and "less than one-quarter of the industry's employees can work under 60 hours a week." It stated that "in the past decade the U.S. Steel Corporation has increased the percentage of its employees subject to the twelve-hour day." The organization hoped that figures such as these would generate public sympathy for a reduction in work hours.[24] Some have reached different conclusions as to exact percentages. Historian Charles Hill came to the conclusion that 32 percent of all iron and steel workers, or about 85,000 men, had the twelve-hour shift, somewhat less

[22] According to Eldon Ernst, "the Interchurch World Movement was a cooperative venture of thirty Protestant denominations campaigning to raise over two hundred million dollars in 1920 for their post-war global work." The group did not meet its goal, however, "and the movement collapsed in mid-1920 deeply in debt," from Ernst, Eldon G. "The Interchurch World Movement and the Great Steel Strike of 1919-1920," *Church History*, Vol. 39, No. 2, (Jun., 1970): 212.
[23] Interchurch World Movement, *Report on the Steel Strike of 1919* (New York: Harcourt, Brace and Howe, 1920), 2.
[24] *Ibid.*, 44.

than the previously mentioned findings.[25] Regardless of the actual numbers, the drive for shorter hours became a rallying cry. The Interchurch World Movement publicized its findings and many followed it in calling for a reduction in time in the industry.[26]

Other groups were adamant in calling for such a reduction. Edward Devine, speaking for the Commission on the Church and Social Service from the Federal Council of the Churches of Christ in America, called on the presidents of the various companies under United States Steel to mandate more humane work shifts. The statement questioned whether or not it was "American" or not to force workers to spend half or even more of their lives on the job: "the question which we raise and press with all the earnestness at our command is whether any corporation has the right, for any considerable number of years, to 'decrease the efficiency' and 'lessen the vigor and virility' of their men; whether any employing corporation . . . has a right to deprive American families of the presence of the head of the family for thirteen hours of the day."[27]

As William Moye points out, complaints "over the long day in steel had raged intermittently for three decades. Successive waves of criticism had beat upon the institution, building to a crest around 1912 and receding during World War I before breaking through in 1923."[28] Those in favor of shorter hours were many, including President Warren G. Harding. Harding exerted much effort in the early 1920s attempting to limit the number of hours that workers spent on the job. As David Brody notes, “in late May 1922 President Harding asked forty-one leading steel men to dinner” and expressed

[25] Charles Hill, "Fighting the Twelve-Hour Day in the American Steel Industry," *Labor History*, Vol. 15, No. 1 (Winter, 1974): 20.
[26] Ernst, "The Interchurch World Movement and the Great Steel Strike of 1919-1920," 220.
[27] Edward T. Devine, "Statement to the Presidents of the Constituent Companies of the United States Steel Corporation," *The American Journal of* Sociology, Vol. 25, No. 6 (May, 1920): 772-73.
[28] Moye, William T. "The End of the Twelve-Hour Day in the Steel Industry: Fifty-four Years Ago, After Pressure by the Harding Administration, the Steel Industry Finally Agreed to Reduce the Workday in the Mills," *Monthly Labor Review*, Vol. 100 (Sep., 1977): 21.

"a well-defined sentiment against the twelve-hour day." He told the men that "he did not intend to insist unduly, but if he could be helpful in bringing about the abolition of the twelve-hour day, it would be very pleasing to him."[29]

U.S. Steel and its president, Elbert H. Gary, were initially unmoved by the public outcry and reform was not immediate.[30] Nevertheless, Gary appointed a committee to explore the effects of the elimination of the twelve-hour day. After a year of deliberation, the committee came to the conclusion in May of 1923 that such a reduction in worktime "would increase costs 15 per cent and require 60,000 unobtainable men."[31] The committee did not believe that the corporation could find so many men due to the recently enacted restrictions on immigration.[32]

But these findings did not satisfy the growing chorus of opinion against the twelve-hour day. Harding redoubled his efforts to encourage the steel industry to eliminate it. Despite continued resistance from Gary, "the break finally came when President Harding . . . expressed keen disappointment to Judge Gary on July 18, 1923. The following week the industry pledged to eliminate the twelve-hour day as soon as the labor supply permitted. By the end of the summer, the eight-hour day, plus a compensating wage-rate increase of 25 per cent, was largely in effect." Gary wrote to Harding that the decision was taken because of "a strong sentiment throughout the country . . . and especially because it is in accordance with your own expressed views."[33] Consequently, according to one estimate, "the percentage of blast furnace employees in all occupations working 72 and 84 hours a week plummeted from 1922 to 1926, and the

[29] Brody, *Steelworkers in America*, 273.
[30] Brody, *Labor in Crisis*, 178.
[31] Brody, *Steelworkers in America*, 273.
[32] Moye, "The End of the Twelve-Hour Day in the Steel Industry," 24.
[33] Quoted in Brody, *Steelworkers in America*, 274.

average full-time hours per week dropped from 72.3 to 59.8 in the same period. In 1926, the average full-time hours for *all* employees in *all* occupations stood at 54.4, down from 63.2 in 1922."[34]

There were significant changes in worktime in the 1920s throughout the metals industries, although the degree of change, as is fundamentally the case throughout this study, largely depended upon the particular job. Workers began to spend less time at their places of employment in the 1920s, although the workers who saw dramatic decreases were those who had been on the job eighty-four hours a week, a minority by almost any estimate. For those who did have the eighty-four hour workweek, such as those tending the blast furnaces, the changes were significant. According to the United States Department of Labor, keepers working the blast furnaces experienced a reduction in some cases of over twenty hours a week within a few years. Despite the fact that they are listed as working over eighty hours a week for several decades previously, the position is listed as decreasing from 83.5 hours per week in 1922 to 62.7 in 1924 in Eastern areas. Elsewhere, the change was almost as dramatic. In the same time period, their hours per week in Pittsburgh dropped from 75.6 to 54.7. Likewise, in the Great Lakes and Midwest region, the change was from 71.7 to 55.3, and in the Southern region, from 76.0 to 62.4.[35]

Skip operators, also employed in the blast furnaces, saw almost as drastic a drop in worktime. Their lessening of the workweek paralleled their co-workers, the keepers, from 83.5 hours per week to 62.7 in the Eastern region from 1922 to 1924. Again, it was a drop of over twenty hours in two years, nearly a quarter of the workweek. During the

[34] Moye, "The End of the Twelve-Hour Day in the Steel Industry," 25.
[35] United States Department of Labor, Bureau of Labor Statistics, *History of Wages in the United States from Colonial Times to 1928*, Wages and Hours of Labor Series, No. 499 (Washington, DC: Government Printing Office, 1929), 249.

same time frame, the hours for the skip operators in Pittsburgh lessened from 76.0 to 54.9, in the Great Lakes and Midwest region from 71.5 to 55.1, and in the Southern region from 76.0 to 65.6. Both positions in the department followed similar trends.[36]

Top fillers in the Great Lakes and Middle West region also experienced a decrease in their workweeks between 1920 and 1926, from 62.7 hours to 53.0, which followed a shortening of their workweeks in the previous decade.[37] Those in the Southern region had to wait longer, however. Their workweek was still 78.9 hours in 1920, although it steadily decreased to 54.0 hours in 1926. The largest drop in the period was from 1922 to 1924, from 76.1 hours to 57.7 hours.[38] It took longer for the reduction in hours for bottom fillers, although by the mid-1920s, it was just as great as for the top fillers. In the Great Lakes and Middle West region, the hours listed for 1920 is 61.7. There was actually a brief spike for 1922 at 70.2 hours, although that decreased sharply to 55.3 in 1924 and 53.0 in 1926. Once again the lengthy workweek persisted a while longer in the Southern region but an even greater reduction had occurred by the middle of the decade. In 1920, the workweek was still 78.7 hours. Yet there was a decrease of over 21 hours in two years, from 75.2 in 1922 to 53.6 in 1924.[39]

Keepers in the same department also experienced a similar decrease in the length of their shifts. Like the top fillers, keepers in most regions experienced a dramatic decrease in length of shifts between 1922 and 1924.[40] The average dropped to 66.3 hours

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[36] *Ibid., 252.*

[37] The decrease in worktime in the 1920s among top fillers was already on top of a previous decrease in worktime during the previous decade. As late as 1909, top fillers in the Great Lakes and Midwest region were listed as working 84 hours a week. This was followed by a sharp decrease to 74.7 hours the next year and 70.5 hours in 1914. *Ibid.*, 251.

[38] There are no hours for the position in the Eastern and Pittsburgh regions beginning in 1919. *Ibid.*, 251.

[39] The 1926 figure for 1926 also shows the workweek remaining at 53.6 hours. Again, there are no hours listed for the position in either the Eastern or Pittsburgh regions for the time period. *Ibid.*, 252.

[40] Although more dramatic in the 1920s, there was a decrease a decade earlier. The last year that the

a week in 1920, but increased to 71.7 hours in 1922, about six twelve-hour days, which was a long work week by any measure. In 1924, however, the week plummeted to 55.3 hours and remained steady thereafter, as the workweek in 1926 was 55.4 hours. Workers in other regions experienced similar trends. The most similar region to the Midwest was the Pittsburgh region. After the strike of 1919, the week remained steady, with an average of 77.3 hours in 1920 and 75.6 in 1922. Because the workweek was even longer in the region in 1922, there was a more drastic decrease by 1924. In that year, keepers worked an average of only 54.7 hours a week, a decrease of over twenty hours in only two years.[41]

In the Eastern region, the workweek for keepers fluctuated slightly after 1910, the last year of the 84-hour week, but it always remained above 80 hours until after the strike. In 1920, the 84-hour week even briefly returned and remained about steady at 83.5 hours in 1922. By 1924, the average dropped to 62.7 hours a week. Slight decreases marked the years immediately following the strike in the Southern region. The workweek averaged 84 hours most of the years in the decade prior to the strike. By 1920, the week decreased to 78.3 hours and again in 1922 to 76.0 hours. The week decreased in length to 62.4 hours by 1924 and, in line with other regions, remained stable at 62.5 hours in 1926.[42]

Many other workers in different positions did not see such a significant decrease in work hours in the 1920s, owing largely to the fact that their workweeks had not been as long as those of their co-workers for several decades. Catchers in the bar mills, for example, had been working over twenty hours less than some workers in the blast

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average work week lasted 84 hours in the Great Lakes and Midwest region, for example, was in 1910. The average never reached 80 hours after 1911.

[41] U.S. Department of Labor, Bureau of Labor Statistics, *History of Wages in the United States from Colonial Times to 1928*, 249.

[42] *Ibid.*, 249.

furnaces. In the Eastern region, the workweek of catchers was already at 56.7 hours in 1920. This stayed relatively steady during the period, decreasing slightly to 55.2 hours in 1926. The Pittsburgh region saw more of a significant decrease. The workweek dropped steadily from 62.8 hours in 1920 to 57.6 in 1922, to 52.6 in 1924 and finally reaching 51.9 in 1926. The Southern region was more comparable to Pittsburgh, with a decrease from 63.6 hours in 1920 to 56.7 in 1926. The Great Lakes and Middle West region, the area that had the lowest hours in 1920, actually saw an increase from 50.2 hours in 1920 to 56.2 in 1924. It did decrease to 52.7 hours in 1926.[43]

Rollers in the bar mills worked comparable hours, although the decrease in their work week was even less than the catchers, owing to their relatively short weeks in the early 1920s. In the Eastern region, rollers worked on average only 56.6 hours per week, with the figure decreasing less than an hour to 55.9 hours in 1926. The other regions saw slightly more change. Workers in the Southern region were on the job 62.7 hours in 1920, and their week decreased to 57.2 in 1926. The hours worked in the Great Lakes and Middle West region in 1920 was similar to the 1926 figure in the South, standing at 57.7 hours. This also decreased about five hours in the same period, dropping to 52.9 in 1926. The Pittsburgh region was the area that saw the greatest decrease. Workers spent exactly ten less hours on the job at the end of the period as compared to the beginning, with almost the entire decrease coming in four years. There was a drop from 61.0 hours in 1920 to 51.4 in 1924 and it reached 51.0 in 1926.[44]

Roughers, co-workers of the rollers in the bar mills, experienced similar trends. The Eastern region's roughers worked 58.0 hours in 1920 and 55.3 in 1926. In Pittsburgh

[43] *Ibid.*, 241.
[44] *Ibid.*, 243.

the change consisted of a decline from 60.4 hours in 1920 to 52.8 in 1926. Those in the Southern region were not as fortunate. Their workweek entailed 64.3 hours in 1920 and 55.7 in 1926. In the Great Lakes and Midwest region, the workweek actually increased in the sampling period, owing to a comparatively short week in 1920. In that year, workers were on the job for only 49.9 hours, although this figure increased twice, to 53.8 in 1922 and 55.2 in 1924. It did slightly decrease to 52.5 in 1926, although the net change in the period was an increase of over 2.5 hours in six years.[45]

The workweek for puddlers was slightly shorter than for some of their counterparts. In the Pittsburgh region, their workweek stood, on average, at 51.8 hours in 1920. This figure significantly decreased to 46.8 hours in 1922 and slightly rose to 47.9 hours in 1926. Those in the Southern region experienced the same trend, although more pronounced. In 1920, they spent 58.0 hours per week on the job, dropping dramatically to 43.4 in 1922 and increasing to 53.1 in 1924. The position in both areas saw a net decrease in the period, though the significant drop in 1922 could have been because of the poor economy at the time. By 1924, the economy was beginning to rebound. Those in the Eastern region saw a slight increase in the workweek in the period, although the workweek by 1924 had decreased from the figure a decade earlier. In 1920 the puddlers had only been on the job for 48.2 hours, increasing to 49.9 in 1922 and 53.0 in 1924. Despite the increase, the figure in 1924 is over two hours less than that in 1914.[46]

In other types of mills, the weeks were much shorter. In the bar, sheet and tin-plate mills, the 84-hour week was almost non-existent by the early 1920s. The only time that it reached as high as 3 percent was in the sheet mills in 1922. At least 95 percent of

[45] *Ibid.*, 245.
[46] *Ibid.*, 247. The records do not list the figures for the Great Lakes and Middle West region in the specified period.

the workforce in all of these mills worked a 72-hour week or less. In the tin-plate mills it was higher. In 1920 and 1922, no one worked an 84-hour week and only one percent of the workforce each year worked in excess of 72 hours. Ninety-nine percent of workers in these mills worked 72 hours or less. Those who worked a 72-hour week composed a small percentage of the workforce as well. The highest figure in the period was 14 percent of workers in the bar mills working such a week in 1922. The vast majority of workers in these mills worked less than a 72-hour week. Of the three, the bar mills probably had the longest work week, with 40 percent of workers in 1920 and 35 percent in 1922 working more than 60 hours but less than 72. Many in these mills worked even shorter hours. Those working more than 48 hours but less than 60 a week rose from 28 percent in 1920 to 35 in 1922. The weeks were shorter for sheet mill workers. Those working less than 48 hours a week stood at 64 percent in 1920 and decreased slightly to 60 percent in 1922. By far the tin-plate mills had the shortest work week for employees. Fifty-eight percent of workers in 1920 worked less than 48 hours a week and this figure increased to 61 percent in 1922. In addition to those workers, another 18 percent each of those two years worked less than 60 hours a week. In 1922, 79 percent of workers in the tin-plate mills worked less than 60 hours a week. No one worked an 84-hour week, one percent worked in excess of 72 hours and 5 percent worked a 72-hour week.[47]

Across all kinds of metal-making plants, the week shortened significantly in the 1920s. However, the legacy of long hours and weeks can be seen extending into the Great Depression. There was a small minority of workers who continued to work a twelve-hour day into the 1930s. One study estimated that "the 12-hour day still existed for perhaps 5 per cent of the workers early in 1933." The same study also stated that "in the first half of

[47] *Ibid.*, 11.

1933, 23 per cent of the workers were scheduled for seven-day weeks every week or every two or three weeks." In addition to this there were complaints that "overtime, at no extra rate of pay, was common in the industry" and that "rest periods were often insufficient."[48] Still, with only one out of every twenty workers toiling for a twelve-hour day and less than one-quarter having to work a week without a day off once every few weeks, shifts for workers had become significantly more humane in less than a decade. Although the workweek shortened for many in the 1920s, the depression in the 1930s would reduce the length of shifts beyond what many desired. Whereas many workers fought for shorter hours in 1919 and its aftermath, most would fight to stay on the job and work as many hours as possible as the depression's impact spread into the 1930s. Indeed, the depression dramatically changed the impression many had toward the time they spent at work.

[48] Carroll Daughterty, Melvin Chazeau, and Samul Stratton, *The Economics of the Iron and Steel Industry*, Vol. 1(New York: McGraw-Hill Book Company, 1937), 200.

Conclusion

As the Great Depression wore on in the 1930s, the problem for many workers was not too much work but not enough of it. Both unemployment and underemployment were rampant in the steel industry during the decade. Some estimates posit that the steel industry in 1931 was producing at half-capacity and continued to fall to one-third in 1933. In 1934, the U.S. Steel mills throughout the Monongahela Valley operated "at just 30 percent of capacity and only a third of its workforce worked full time."[1] In Duquesne, U.S. Steel initially provided relief programs for underemployed and unemployed workers, but the company disbanded these efforts in 1934 once the Federal Emergency Relief Administration initiated "county relief" for some 64 percent of the families in the town.[2] In the same year, 29 percent of Duquesne workers were out of work "and another 48 percent worked only part time."[3]

The average number of hours worked in the industry further reflects the lack of work. Between 1932 and 1940, the average workweek almost always remained below 40 hours a week with one exception, 1936, and some years even fell below 30 hours a week. Nineteen thirty-two was one of the worst years listed. Those recorded as working in the "Iron and Steel Group" worked an average of 30.0 hours a week. Those recorded as working in the "Blast Furnaces, steel works and rolling mills" worked an average of only 26.1 hours that year. The length of the workweek continued to rise during the following years until 1936, when it reached a peak of 40.8 for the “Iron and Steel Group” and 40.9 hours for the “Blast Furnaces, steel works and rolling mills” amidst the "Roosevelt

[1] John. Hinshaw, *Steel and Steelworkers: Race and Class Struggle in Twentieth-Century Pittsburgh* (Albany: State University of New York Press, 2002), 41.
[2] James D. Rose, *Duquesne and the Rise of Steel Unionism* (Chicago: University of Illinois Press, 2001), 66.
[3] *Ibid.*, 59.

Recession," the economic downturn that occurred during 1937 and 1938. There was a slight decrease in the next year to 39.1 and 38.7 hours. But 1938 saw available work plummet as the workweek dropped to an average of 31.5 and 28.7 hours, respectively. The numbers began to rise as the Second World War approached, with the workweek increasing to 36.8 and 35.5 hours in 1939 and reaching 38.1 and 37.3 hours in 1940.[4]

The length of work shifts fluctuated somewhat each year according to the season, although economic conditions were often primary causal factors. The average workweek in 1936, a year of better economic conditions, was particularly high, with several months, including April and October, having an average week of over 40 hours. This continued into 1937, with many of the early months of the year having longer weeks. January, a month usually of low demand for steel, had average workweeks of over forty hours. The later months of 1937 saw a decrease in the length of the week and this trend continued well into 1938. January 1938 had workweeks well under 30 hours a week and this was also true for July, a month of usually high demand. Workers' anxiety over employment could only have been heightened by the unpredictability of their hours.[5]

At the Duquesne Works, records show that the vast majority of workers, with few exceptions, worked an eight-hour day by 1936. Those who were lucky enough to work full-time worked five eight-hour days during the week and a four-hour day on Saturday, a total of forty-four hours a week. Those working part-time also worked eight-hour days but only three or four days a week, for the most part.[6] Available work did increase from the middle of the decade into 1937. In May of that year, "Homestead was operating at

[4] United States Department of Labor, Division of Employment Statistics, *Hours and Earnings in the United States, 1932-1940*, No. 697. (Washington, DC: Government Printing Office, 1942), 50.
[5] *Ibid.*, 50-51.
[6] Records of the Duquesne Works, 1936, Archives of Industrial Society, University of Pittsburgh.

nearly 90 percent of capacity, and it employed twice as many workers as had been working there just a few months before."[7] But the shock of the Roosevelt Recession hit hard, and the problems of unemployment and underemployment would not be solved by Roosevelt's New Deal. The Second World War would ultimately bring the entire workforce back to the plants and off of government doles.

The changes that occurred in the iron and steel industries from the 1870s to the 1930s were dramatic. It may rightly appear that the only constant, especially in reference to worktime, was change. The significant variation regarding worktime in the iron and steel industry in the United States may be due to one inescapable fact: a massive and terribly complex industry cannot be adequately described by any particular set of statistics. Since many records no longer exist or are closed to researchers and the length of shifts fluctuated constantly due to factors such as changing economic conditions and technology, it is almost impossible to find any simple answer to the question of how long workers were on the job.

The best method of approaching such a question is to understand the trends. It is difficult to find the exact number of hours worked by a specific group of steelworkers, but it is not impossible to determine the approximate number of work hours for various jobs and the fluctuations that accompanied them. The process is ultimately about attempting to understand how work hours affected the workers at the time. Understanding why they worked the hours they did and what specific occurrences brought about changes in their schedules provides an important perspective on the lives of workers.

Arguably foremost among the factors that affected worktime was technology. As plants became increasingly mechanized and began to extend production hours throughout

[7] Hinshaw, *Steel and Steelworkers*, 57.

the day, workers, in turn, began to spend more hours on the job. The greater mechanization also limited the number of skilled workers needed at any given mill. As a result, this increased the number of unskilled workers, which enabled management to take greater control of the workplace. The heralded strikes and crushing of unions at the end of the nineteenth century, particularly in the 1890s, was merely an effect of the increased control of management over the workplace. The ability of management practically to destroy unionism in the steel industry owed to the fact that the increased number of unskilled workers had far less bargaining power than their skilled counterparts only a few years earlier.

The influx of immigrants also played into the hands of management at the end of the nineteenth century and this continued in the first two decades of the twentieth century until legislation severely limited immigration, particularly from eastern and southern Europe, in the early 1920s. The fact that U.S. Steel generally ended the twelve-hour day contemporaneously to such legislation was not entirely a coincidence. In short, immigrants provided a pool of available labor that was eager to work for little. In comparing the work experience in iron and steel in Britain and America, Martha Shiells posits that the great wave of immigration to America had an impact in two different ways on the length of the workday. First, tying technology to immigration, she notes that the pool of immigrants "encouraged the adoption of technology that replaced skilled with unskilled labor." Simply put, it was easier to have greater control over an unskilled work force as opposed to a skilled one. "Second, immigrants provided steel companies with supplies of workers who were alike in demanding a lower premium for twelve than for eight hours." A great many immigrants in this era came to America because of the

availability of relatively high-paying, steady industrial work. In many instances, young men realized they could earn more money in the mills than they ever could in their native land. Despite criticism of low wages in the steel industry, those wages were usually better in the mills than most unskilled workers could earn in Europe.[8] John Bodnar notes the increased wages Americans had over their British counterparts, citing that "even an ordinary steel laborer earned a weekly wage in Pittsburgh which was twice that in Sheffield, although he did have to work somewhat longer." The conditions improved for skilled American workers in Pittsburgh who "were especially better off in terms of hours and wages than in an English city."[9]

It is clear that the length of shifts, especially in steel, increased in the final decades of the nineteenth century. It reached a peak in the last decade of the century and remained steady during the first decade of the twentieth century. A slight decrease began in the 1910s in several occupations and the length of the workday plummeted by the 1920s, particularly after 1923. This was due largely to a public outcry led by the president himself over the longest shifts in the industry. One estimate from the U.S. Department of Labor was that the average length of the workweek for blast furnace employees dropped from 72.3 hours in 1922 to 59.8 in 1926. Work hours in the department infamous for the 84-hour week had fallen to less than 60 hours by 1926. In regard to the entire industry, "in 1926, the average full-time hours for *all* employees in *all* occupations stood at 54.4, down from 63.2 in 1922."[10] After a sharp drop in the mid-

[8] Martha E. Shiells, "Collective Choice of Working Conditions: Hours in British and U.S. Iron and Steel, 1890-1923," *The Journal of Economic History*, Vol. 50, No. 2 (Jun., 1990): 389-90.
[9] John Bodnar, *The Transplanted: A History of Immigrants in Urban America* (Bloomington, Indiana: Indiana University Press, 1987), 60-61.
[10] Quoted in William T. Moye, "The End of the Twelve-Hour Day in the Steel Industry: Fifty-four Years Ago, After Pressure by the Harding Administration, the Steel Industry Finally Agreed to Reduce the Workday in the Mills," *Monthly Labor Review*, Vol. 100 (Sep., 1977): 25.

1920s, the week remained steady until the end of the decade. Most of the 1930s was highlighted by the effects of unemployment and underemployment and many workers had to deal with the disconcerting experience of having much more time off from work than they desired. This experience must surely have influenced that generation's entire attitude toward work as they faced the return of full production with the onset of the Second World War.

Simultaneous with the technological transformation of the mills toward the turn of the century, trade unionism began a downward trend in the 1890s and the 1900s. Labor history has followed such a path almost exactly one hundred years later. New fields of study such as racial, gender, or even sexual history have had greater appeal to historians than familiar stories of union battles with the likes of Andrew Carnegie and Henry Clay Frick. Understandably, labor history has seemed to run into a dead-end for many, especially as American trade unions began to decline again in the final decades of the twentieth century. Historians have foregone such subjects for more exciting topics that suit their fancy. However we might explain these new directions, there is no good reason for labor history to go by the wayside. The contemporary decline in popularity of trade unions need not determine the future of labor history because it is not merely about unions. Like any other type of history, labor history is about people. The struggle of workers to gain better pay, to have safer working conditions and to work shorter hours is a stirring story of everyday lives. There is no need to focus, favorably or unfavorably on the foes of organized labor like Carnegie and Frick if one does not wish to do so. How can one study the everyday lives of average workers more fruitfully than by closely analyzing how many hours they worked and the type of work they did on a day-to-day

and week-to-week basis? Many historians could spend plenty of time and do much good by further analyzing such a subject.

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